AMERICAN RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

ESTABLISHED IN 1831.

PUBLISHED WEEKLY BY J. H. SCHULTZ & CO., AT NO. 9 SPRUCE ST., NEW YORK, AT FIVE DOLLARS PER ANNUM IN ADVANCE.

SECOND QUARTO SERIES, VOL. IX., No. 26.] SATURDAY, JUNE 25, 1853. [WHOLE No. 897, VOL. XXVI.

☞ The *Mechanical Engineering* department of this paper will be under the charge of Mr. ZERAH COLBURN.

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American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & CO., No. 9 SPRUCE ST.

Saturday, June 25, 1853.

Railroads in the Slave States.

There is no doubt that considerable predjudice exists, particularly among *foreign* purchasers against railroad securities of the *Southern* or *Slave* States. This feeling against the institution of Slavery on the *abstract*, is transferred, by a very natural process, to the late enterprise in which slaveholding communities are engaged, and things entirely dissimilar are made obnoxious to the same sentiment. This is a most incorrect and illogical mode of reasoning, for as a matter of fact, the question of slavery has nothing to do, necessarily, with the value of railroad securities, nor the productiveness or management of these works. There are certain causes, such as a greater density of population, a greater variety of commercial and manufacturing pursuits, and a greater disposition to travel in the northern States, why railroads should be more profitable than at the south; while on the other hand, the more conservative chnracter of their people, the fewer completing lines, and the greater proportion of the products of the soil, and of the articles that go into consumption, thrown upon the southern roads, give them some decided advantages over those of the north.

We have often, and we believe satisfactorily, explained the cause of the failures of the early southern and western railroads. The enterprises of 1837 and 8 were not only *pioneers*, but they were premature; in advance of the wants of the country; of its means to construct, capacity to manage, or business to sustain them. The country had not been settled a sufficient length of time to determine either the seats or channels of future commerce. No amount of money would have rendered the early enterprises successful, because the real elements of success were wanting. No amount of means can change the character of an unprofitable business, and the more money those engaged in it have, the more deeply will they involve themselves in ruin. The early efforts in the south and west were doomed to defeat from the very nature of the case. Another cause why even *partial* success, as at the north, was not realized, was the fact that the sparseness of the population rendered necessary the *completion* of a project to realize the results predicated of it. In the New England States, for instance, the several links of a railroad, as they were opened, connected neighboring villages, between which existed a large traffic and travel, and supplied a considerable revenue to a road. In the southern States the population is *agricultural*, uniformly distributed over the whole surface of the country. To enable lines of road to pay, therefore, they must be longer tnan at the north to secure the requisite traffic and connect distant and important points. They must to a considerable extent, be *through* roads.

When railroads were first attempted in the south in 1837, sufficient means could not be had for the *entire* projects. They necessarily fell through.—The fifteen years that have since elapsed have wonderfully changed the face of things in the States where railroad construction is now the most active. The popuulation has more that doubled, while the means of the people have more than *quintupled*. With this great progress in wealth and population, time and a more enlarged experience has located and built up the commercial depot, and designated the convenient routes of travel and business, so that the enterprise of the present day have only to follow the well expressed wants of the people, who have now accumulated sufficient means for their construction. The projects at present in hand are *legitimate*, in every sense of the word, and will consequently progress with a regular and uniform pace.

We have thus briefly stated the causes of the *failure* of those early projects of the southern States, and of their present success. That this success is substantial is fully proved by the results already achieved. There is hardly a State in the Union in which railroads have been pushed to a greater extent than in *Georgia*, and there is none we believe where they have been so uniformly successful.—There are none whose projects have proved better investments, or have been better managed. They have built at a moderate cost, and we have no doubt the whole investment of the State would command a premium in the market, if offered for sale. The three leading roads, the Central, the Georgia, and the Macon and Western, have for years declared dividends averaging from 7½ to 10 per cent on their cost, besides reserving considerable sums for contingencies. But the success of southern roads is not confined to Georgia. The leading road of South Carolina is one of the most productive, and is one of the best properties in this country. In North Carolina the Wilmington and Raleigh road is becoming one of our best paying roads. In Virginia the roads completed are generally profitable, while there are none more promising than many of the new roads of this state. In the south-western States, there are no roads of sufficient magnitude, or which have been completed a sufficient length of time to serve as illustrations. It may however be stated, as a general rule, which is fully borne out by the facts, that the roads of the south are as well managed and as profitable as those of any other section of the country.

As far as their securities are concerned, there is good reason in the nature of the case why this should be so. In their uses they bear a much more intimate relation to the business of the country than those of the north. In the northern or middle States the great diversity of labor in a particular district may, and often does, supply most of the articles that goes into use, which are distributed to the consumers without the intervention of a railroad. In some of the Southern States the entire labor of the country is devoted to the production of one staple, *cotton*, no portion of which is consumed in its raw state, upon the

soil. The entire crop is *exported*. As a necessary consequence an equal amount in *bulk* or *value* is *imported*; either in return for the export, or to supply the ordinary wants of the inhabitants, very few of which are supplied by a domestic manufacturing establishment, or by subdivision of labor. The amount of transportation, therefore, thrown upon the routes of commerce in Mississippi, represent an aggregate equal to twice the whole produce of the State. The same amount of labor therefore, in this state, supplies a much larger amount of business to a railroad than in any of the northern States, where a greater *variety* of pursuits exists.

A large number of the more important roads of the south have their directions at right angles to the parallels of latitude. These roads, compared with those following the *same* parallels, have some marked points of difference. In the latter case, where there is no variety of pursuits, and where the whole population is engaged in agriculture, there can be little or no traffic. The products being identical, *all* the surplus is the same in *kind*. But upon a route following a meridian of longitude, an entirely different rule prevails.—Such routes traverse regions abounding in a diversity of production—all of which are regarded as essential to the wants of every individual in the community. Such lines may be said to coincide with the *natural* routes of commerce, over which a large traffic must always pass, although the territory traversed may be entirely devoted to agriculture. The grains, provisions and animals of the north are wanted by the southern states engaged in the culture of cotton, rice, sugar and tobacco; and these last named products are received by the people of the north in exchange for what they have to sell. In this country, therefore, the routes running east and west may be termed *artificial*, those running north and south the *natural* routes of commerce. It is this fact that gives particular importance to the great line of communication which it is proposed to extend from the Gulf of Mexico toward the Lakes, thus uniting a country, the extremes of which abound in the fruits of the tropics, and in the products of high northern latitudes.

Roads in the southern States have the additional advantage of being less subject to competition than those of the north. In the former, a line must connect important points to command attention and support,—a short line will generally be regarded as of doubtful expediency. When, therefore, a road of considerable magnitude, forming important connections, is completed, the prospect of a rival work is not entertained. Rival roads grow up in the north upon the progress of what, in the outset, were short *local* works. As these proceed, the idea of making them *connecting* roads between important localities already united by other roads, become engrafted upon the general plan and in this way rival roads spring up in the northern States, which would have never been undertaken as entire schemes. There are no *rival* roads, strictly speaking, in the southern States, nor are there likely to be for some years to come. The southern people contribute much more largely toward the cost of their roads than do those of the north, as a general average. This is owing in part to the fact that a less number of projects are pressed upon public attention, and partly because capital is in fewer hands. The high price that their great staple has commanded for a series of years has given the planters large means, which are now liberally contributed toward their railroad schemes. A much larger portion of the cost of their roads is represented by stock than those of the north, affording often a broader basis for their securities.

The *conservative* character of the southern people, which is the result of their peculiar domestic institutions, affords a good guarantee against the undertaking of works that are not called for by already existing wants. There is no danger that the construction of these works will be pushed to an extravagant extent, as is being done, it is feared in some of the northern States. In the south, only such lines as are of general, we may say national importance, have been yet commenced; and these are the only ones that will command any considerable share of public attention for some time to come.

We have thus endeavored to present a rational view of the probable value of the securities of southern railroads. It coincides strictly with the actual *facts* as they exist. The peculiarities of southern institutions show themselves as much in the economy of railroad construction, as in anything else. These very institutions give some excellent features to their schemes. It would be useless, if not impossible, to institute any comparison between the value of the securities issued by the roads of the different sections of the country. It is enough for our present purpose to say that any prejudices that may exist, and to which we have referred, against those issued by southern roads, are without foundation. They may differ in value from those of the north, as the latter do among themselves. They may be less, or more valuable than the latter, just in the degree that they have a stronger or weaker basis, or have greater or less prospective or speculative value. On an *average*, the market value of southern railroad securities are fully up to those of the north. They may not reach so high a figure as some of the former, but none ever go so low. They are equally deserving the attention of purchasers, and may be taken perhaps with *less risk*, than the average of those of the northern States.

New Iron Bridge.

The enterprising and successful bridge builder, Mr. S. Whipple, of Albany, has recently completed an iron bridge for the Albany Northern railroad, which is believed to have the widest span of any structure of similar character in the country. It crosses the Erie canal, about seven miles from Albany. It has one hundred and forty-six feet clear span, and forms an angle of forty and a-half degrees with the canal. It has been two months in use, and was previously tested by distributing one hundred and fifty tons of iron uniformly over its whole length, and by passing over it a heavy locomotive and tender and heavily loaded cars, enough to cover the whole length of the bridge, and making a total load of two hundred and forty tons, or three times its usual load under the passage of the heaviest freight trains. The complete success of this work, its economical distribution of weight and material, and its safety from fire, render it worthy of the favorable consideration of railroad people throughout the country.

Lexington and Danville Railroad.

We have the recent exhibit of this Company, setting forth its financial condition, with a view to a sale of its securities, which are soon to be offered to the public.

The line of the road extends from Lexington to Danville, a distance of 36 miles. As far as its general direction and objects are concerned, it may be regarded as the extension of the Covington and Lexington road.

The estimated cost of the work is $1,235,826, as follows:

Graduation, including rock excavation, tunnelling, and the bridging, including all masonry, ballasting, and the preparation of the road bed for the superstructure; including the bridge over Kentucky river, including an addition of 5 per cent for contingencies.....	$705,907 00
Superstructure, includi'g rails, chairs, spikes, and all materials, turnouts, and fixtures, and laying track....	344,419 00
Buildings and fixtures, engine cars, repair shops, passenger house and the furniture and equipment of the road.....	150,000 00
Office expenses, superintendence, &c., &c.....	35,000 00
	$1,235,326 00

MEANS PROVIDED.

Individual stock.....	$205,450
Corporation subscription of stock.....	72,000
Jessamine County cash subscription, paid by taxation,—one-third paid, and levy made for another third....	75,000
Boyle County subscription of stock, two-thirds paid in.....	150,000
Fayette County subscription of stock, two-thirds paid in.....	200,000
Total stock subscribed.....	$702,450
Bonds of the Company proposed to be issued for the purchase of iron, machinery, &c., secured by first and only mortgage on the whole road...	600,000
The security for the bonds amounting to.....	$1,302,450

We copy from the exhibit the following account of the progress of the work of construction, and the connections proposed to be formed:—

PROGRESS OF CONSTRUCTION.

The whole line of road from the city of Lexington to Danville, 36 miles, is under contract to an able, experienced and efficient company of contractors, and progressing rapidly to completion, under the able superintendence of the experienced Chief Engineer, Julius W. Adams, Esq., for several years engaged as one of the Superintending Division Engineers in the construction of the New York and Erie railroad, and for years employed on the Massachusetts roads. Twelve miles of the road, from Lexington to Nicholasville, will be in running operation by the 1st of January, 1854, and ready to run in connection with the Covington, and Maysville railroads, on their opening at Lexington.

The road is in process of construction in the most substantial manner as a first class railroad, with the most approved pattern of rail. The grades and curves will compare favorably with the best roads in the country.

The iron has been purchased and paid for to lay the track, and all turnouts at and from Lexington to Nicholasville, twelve miles, and will be laid down early in the fall. And vigorous efforts are making to complete the road to Kentucky River by January next, to be ready to furnish the city of Lexington with the coal, iron, salt, and lumber, with which she is supplied from that stream. It is confidently expected that the whole road will be

completed from Lexington to Danville by 1st of January, 1855.

The extension of the Lexington and Danville railroad to a junction with the South-Western railroad, of Tennessee, is not embraced in this exhibit, as the lien proposed to secure the loan asked for is applicable only to that part of the road from Lexington to Danville.

The sum of $500,000 has heretofore been subscribed to the capital stock of the Company for the extension of the road south, to a junction with the South-Western railroad, at the Kentucky and Tennessee State line; and the most sanguine expectations are entertained, that the company will be ready to place the extension under contract during the summer, on terms to secure its completion within two years from the ensuing autumn.—Efficient aid to this enterprise is confidently expected from Cincinnati. Since the great scheme projected by Gen. Hayne, for the connection of Charleston with the Ohio River at Cincinnati, the latter city has manifested a deep interest in it. It brings her in business contact with a new section of the south and south-west, of vast extent, fertile, populous and wealthy, affording her a market heretofore unexplored, for her merchandise and manufactures, without competition. There is no outlet of higher importance to Cincinnati, and every reliance is felt that the people of that great centre of western trade and commerce will see to it, that the ninety miles of road from Danville to the junction with the South-Western railroad at the Tennessee State is speedily completed.

The extension from Danville south to the State line has been surveyed, and the entire road, from Lexington to the State line, is estimated by the Engineer to cost $3,550,000, or about $28,000 per mile.

CONNECTIONS.

This road occupies a peculiar position in its connections. At Lexington, the northern railroad focus of the State, it connects with the Covington (Cincinnati) and Lexington, Maysville and Lexington, Lexington and Big Sandy, and the Lexington, Frankfort and Louisville railroads, which concentrate at Lexington, and receives the freights and travel of all these roads, brought from the Ohio river and the great commercial centres with which they connect, destined for central Kentucky and the south. By the roads projected from Danville to Nashville, to Knoxville, and the extension directly south to the State line, Danville becomes the southern railroad focal point in Kentucky, and the road from Lexington to Danville must stand as an isthmus, connecting those great railway corporations radiating northwardly from Lexington and southwardly from Danville.

At Danville, whence this road is extended directly south, roads are projected to Knoxville and Nashville, in Tennessee, and companies are organized for their construction, and vigorous efforts making to secure their completion at an early day. By the Danville and Knoxville road, 140 miles in length, connection is had by roads already constructed and now in operation, with the cities of Charleston and Savannah, the populous towns of Georgia and South Carolina, and the cotton and rice sections of those States.

By the Nashville and Danville road, connection is afforded with all the roads diverging from that point south and south-west in the direction of New Orleans and Memphis.

But its most appreciable and valuable connections are found by this road extended directly south, connected by the South-Western railroad of Tennessee, with the Chattanooga road at Winchester, uniting there with the roads which penetrate South Carolina, Georgia, Alabama, Mississippi and Louisianna, connecting with the cities of Charleston, Savannah, Mobile, Pensacola and New Orleans, by the shortest and most direct lines. It is the main trunk line, north and south, through the central States of the Union, extending from the great lakes of the north to the Gulf of Mexico on the south, traversing twelve degrees of latitude, affords an easy, cheap and rapid means of exchanging the various products of different soils and climates, bisecting all the roads from the Mississippi to the Atlantic, and at its southern terminus radiating south. south-east, and south-west. The Lexington and Danville road is but the southern continuation of the Covington and Lexington, Maysville and Lexington, and Lexington and Big Sandy roads, or more appropriately, it is the extension of the Covington and Lexington road from Cincinnati directly south, having the same gauge of that road, and constituting with it a main trunk line north and south. For a table of distances between the several points with which it connects, reference is made to the following abstract from the report of the Engineer of the road, compiled from authentic sources, showing the position of the road on the route from the north to the south.:

	Miles.
From New York to New Orleans, via Philadelphia, Wheeling, Cincinnati, Louisville, Nashville, Tuscumbia and Jackson.....	1792
From New York to Mobile, via Philadelphia, Wheeling, Cincinnati, Louisville, Nashville, and Mobile and Ohio railroad.....	1784
The same by Alabama and Tennessee railroad.....	1655
From New York to New Orleans, via Philadelphia, Wheeling, Portsmouth, Maysville, Lexington, *Danville*, McMinnville, Huntsville Tuscumbia, and Jackson.....	1714
From New York to Mobile, via same route, through *Danville*, McMinnville, and Alabama and Tennessee road.....	1526
From Cincinnati to New Orleans, via Ohio and Mississippi rivers.....	1508
From Cincinnati to New Orleans, via railroad, Louisville and Nashville.....	1032
From Cincinnati to New Orleans, via *Danville*.....	948
From Cincinnati to Mobile, via railroad, Louisville and Nashville.....	898
From Cincinnati to Mobile, via *Danville*...	813
From Cincinnati to Savannah, via *Danville*,	850
From Cincinnati to Charleston, S. C., via *Danville*.....	866
From New York, via Baltimore, to the cotton region of Tennessee, by way of Parkersburgh, Virginia, Cincinnati, Louisville and Nashville.....	1131
From New York to the same region, via Parkersburgh, Virginia, Portsmouth, Maysville, and *Danville*.....	990

The business prospects of this road can be better inferred from the general statement of the fact that it traverses one of the best portions of Kentucky, which has now no outlets to market but such as are furnished by the ordinary roads of the State. There can be no doubt that the locality traversed is capable of supplying a business equal to the capacity of a first-class road. That portion of its line adjoining Lexington is celebrated for the fertility of its soil, and the extent of its agricultural productions. As we go south, we come into the coal and iron deposits of the State, which are to be the sources of the future supply of these important articles. It can be subject to the rivalry of no similar works, from which it is protected by the configuration of the country, if for no other reason.

As a local link, it is eminently needed to meet the wants of an active, industrious, and wealthy population, who are able both to furnish a large portion of its cost and to supply to it a lucrative traffic. To those residing at a distance it is chiefly attractive, from the relation it bears to other lines, which, when completed, will form continuous lines of railroads extending from the Gulf of Mexico and the South to the great Lakes. Between these termini are found every variety of agricultural products, and a railroad connecting them will serve as a medium for distributing to the consumers every article that enters into domestic consumption. There can be no doubt, (as already stated in another article in our paper of to-day) that a road traversing our country from north to south, possesses some decided advantages over those having a different direction. Upon every hundred miles of their length are found different varieties of the products of the soil, the exchange of which constitutes no inconsiderable portion of the commerce of the country.

The Lexington and Danville company propose two extensions of their line; one running South, through the central portions of Kentucky and Tennessee to Winchester, where a connection will be formed with the Winchester and Alabama road, which is to connect with roads extending to the Gulf. The other fork is to be carried to Knoxville, Tenn., and when completed will realize the old project of the Charleston and Cincinnati road, which excited so much interest throughout the country some years since. For these roads, the Lexington and Danville, in connection with the Covington and Lexington, must form the common trunk to the Ohio. The southern extension of the above line is now under contract, with sufficient means provided to secure its construction. The Knoxville branch is now receiving great attention in the cities of Charleston and Cincinnati, and we have no doubt that foreign aid will supply the lack of domestic means necessary to the early completion of this line. When the *through* connections shall be made, the Lexington and Danville road will form a part of one of the most important railroads in the country. 'Till then, we believe its local business will yield a lucrative and remunerating traffic.

The Economy of the Freight Train.

Its Construction.—The double truck, the chilled plate wheel, and, to a certain extent, the India-rubber spring, and the oil tight axle box, have built up the freight train. The truck is in universal use, except for short platform cars. The chilled plate wheel is the cheapest and strongest of any, when considered in its application to the freight train. The plate form is not only stronger than the spoke form, but insures a more even chill than the latter, as, in the spoke wheel, soft spots will appear opposite the ends of the spokes. The plate wheel does not fan the track, nor incur as much resistance from the air, and is the easiest kept clean.

The India-rubber spring is lighter, makes fewer joints, and generally gives less trouble in keeping it in repair, when compared with other springs.—Lightner's axle box is very generally used for convenience, and for its great economy in oil and attendance.

The size of an eight-wheel box freight car is usually 28 feet by 8½ feet, and 6½ to 7 feet deep. The wheels are generally of 30 inches diameter. The cost of such a car, with oak frame, is generally $500 to $600. For an open platform car, otherwise the same, $520. The weight of a box car is from 12,000 to 16,000 lbs., according to the strength of its frame, axles, etc.

The "swing beam" generally used in passenger cars has not been used to any extent in freight cars, consequently the latter are more rigid upon the track. The "centre bumper," or the arrangement by which the longitudinal contact of the car is made only in the axis of the train, is in univer-

sal use in this country, on all cars, and reduces the resistance of their passage around curves. Upon the Baltimore and Ohio railroad, a "continuous draw rod" is used, by which no car in a train is strained beyond the force necessary to pull its own weight. A very good brake for any eight wheel car is Stevens' double brake. The wearing sides of the brake heads are faced with wood, with leather, or with wrought iron. The Erie cars have wrought iron brake shoes, which produce less friction, and are consequently less liable to injure the wheels by sliding them on the rails, and have an advantage in keeping a smooth surface for the tread of the wheel. There are but few roads which use "safety beams" under their freight cars to support the axles in case of their failure.

The adaptation of Myers' cylinder car, for all kinds of self-adjusting freight, as coal, grain, ground plaster, potatoes, lime, sand, etc., etc., should commend it to a fair trial on the part of railroad managers. The condition of coal transported by it has been reported as excellent. The only objections which may be suggested against it are, that from bringing the load directly upon the track, the former may prove too rigid, and may not, from the size of its wheels, be likely to keep its position so well upon the track as a car upon smaller wheels. But these obstacles are not stated as necessarily existing. No invention is so useful but that an objection might have been predicted against it, and the success of this car, as of other important improvements, must be decided in its practical operation. Its principle is certainly the perfection of mechanical simplicity.

The Capacity and Operation of the Freight Train.—The usual load of an eight-wheel freight car is eight tons. Ten tons of live stock, or eleven tons of flour are sometimes carried. There are but few roads, however, where the general tonnage of the trade does not settle in one direction, and hence a large proportion of empty cars must be carried one way. The load of potatoes, live stock or grain—the lumber or stone—which goes *down* to be exchanged for its value in dry goods, groceries, or hardware, *up*, occupies much the greater space. Upon the Concord railroad, in New Hampshire, two-thirds of all the freight cars which went over it in 1852, from the upper railroads to Boston, returned empty. On the Reading road, of course all the coal cars return to the mines empty. Consequently the average weight of freight per train cannot equal the weight of the cars in which it is carried. The average weight of freight carried per train, each way, on the Erie road for 1852, was 73 tons, requiring a weight of cars averaging 149 tons, or but one-third of the whole weight of the train being the weight of its load. On the Northern railroad 74 tons were carried with a weight of 150 tons of cars, engine and tender, or 115 tons of cars. On the line of the Albany and Buffalo railroad, for the same time, the average of freight per train was 63.35 tons; the cars alone weighing 156 tons per train. This was the average of the four roads from Schenectady to Buffalo.

The length of the freight train is limited commonly by the power of the engine to draw it. Upon the Erie road 13 loaded eight wheel cars is the full load for engines of 33 tons weight running from Piermont to Port Jervis, while 30 of the same cars are a common load over the Delaware Division. The difference comes from the grades on the Eastern division exceeding those of the other division. The most advantageous and economical application of locomotive power occurs at a speed of 10 or 12 miles per hour; and freight engines should be designed for that speed, by giving them a long stroke of piston or a small wheel. We shall discuss the freight engine hereafter. There is generally no necessity for a high rate of speed for freight trains. An article of regular and constant delivery, imperishable in its nature, can be carried at a speed consistent with an economical transportation without embarrassing the trade. There are very many objections to high speeds;—the greater force of the blows upon the track, the increased strain on curves, the evident diminution in the effect of the power, are all opposed to a high rate of speed, where no necessity exists for its maintenance. Where a train of passengers, weighing 75 tons is driven 30 miles per hour, a freight train weighing 300 tons should not go over nine or ten miles per hour. This particular policy is adapted to the heavy through freight of great roads, especially such as have to be operated through the night, whereby a train can make its proper time.

The general weight of the Reading railroad coal trains is 700 tons of 2000 lbs. These are of ninety cars, weighing 5600 lbs. each, and loaded with 10,000 lbs each.

There are an engineer, fireman and conductor to every freight train, besides one brakeman for every five to ten cars. On the Ogdensburg railroad one brakeman is employed for every five cars.

As to the loading of trains, the heaviest freight will of course be placed at the bottom, and be uniformly distributed. All self-adjusting freight, as coal, grain, sand, etc., will be loaded and unloaded by the help of spouts or scoots. Live stock, with proper platforms, load themselves. Long lumber is generally loaded, each end, upon a short platform car, which are connected by a long shackle bar. The advantage of long lines in the respect of less handling of freight, tends to reduce the expense of transportation. The Erie road enjoys a favorable position in this respect, and all of its through freight, running from pier to pier, a distance of 446 miles, receiving and delivering from vessels at each end; and doing a business for branch roads in which there is but one transfer of freight (either a reception or delivery), reduces this item to its least expense.

COST OF TRANSPORTATION OF FREIGHT.

The item of the expense of moving one ton one mile has never been so well ascertained as since the New York State laws compelled the apportionment of the expenses of railroads to the distinct heads of passenger and freight transportation.—From the report for 1852, made up by the State Engineer, Wm. J. McAlpine, Esq., we are enabled to make up a statement of this expense from the business of the three great freight lines of N. Y., the Erie, the Central, and the Northern. We have calculated these statements, in each case, from the reports returned by the different roads, and have not relied at all upon the *tables* appended to the reports, many of which contain very serious errors, typographical or otherwise.

The first column gives the expenses per ton of freight for one hundred miles run upon the Erie road; the second gives the cost per train of 73 tons for the same distance. The next seven columns give the expenses and averages for the lines composing the Central line. The last two columns are for the Northern road. The items of the Albany and Schenectady road are not fully stated, and the line is not entirely a favorable one for comparison. The averages are taken for the 4 roads from Schenectady to Buffalo, with the single exception of labor of loading and unloading, which should, of course, be averaged between all the roads—the Albany end of the road doing the most of this work:—

EXPENSE FOR TRANSPORTATION OF FREIGHT.

	Erie R.R. per ton for 100 miles.	Do. per train of 73 tons 100 miles,—149 tons cars.	Albany and Schenectady as pr. Erie R.	Utica and Schenectady.	Syracuse and Utica.	Rochester and Syracuse.	Buffalo and Rochester.	Av. of four last roads.	Central R.R. 63,35 tons 100 miles, 156 ton cars.	Northern R.R. 74 tons p. 100 miles with 115 ton c'rs.	Northern N. R.R. 74 R.R. one ton per 100 miles.
Cost of maintaining way.....	$0.167	12.19	.....	0.175	0.337	0.263	0.247	0.256	$16.22	$15.46	0.209
Repairs of Locomotives.....	0.103	7.52	.....	0.062	0.156	0.112	0.102	0.108	6.84	6.74	0.091
" Freight Cars.....	0.071	5.18	.....	0.087	0.122	0.182	0.121	0.128	8.18	5.62	0.076
Incidental charges, repairs of machinery, watchmen, &c...	0.250	1.81	.....	0.030	0.030	0.025	0.016	0.025	1.58	3.92	0.053
Office expenses, Agents, &c....	0.062	4.53	.....	0.036	0.134	0.061	0.106	0.084	5.32	11.10	0.150
Loading & unlo'ding, porters &c.	0.105	7.66	1.100	0.046	0.055	0.055	0.175	0.286*	18.12*	11.62	0.157
Wood and water stations.....	0.003	.22	0.018	0.012	0.019	0.022	0.026	0.020	1.27	1.04	0.014
Conductors.....	0.091	6.64	.....	0.029	0.032	0.047	0.053	0.040	2.53	6.44	0.087
Engineers.....	0.083	6.06	0.190	0.051	0.078	0.073	0.120	0.081	5.13	3.85	0.052
Fuel and cost of preparing.....	0.190	13.87	0.360	0.200	0.260	0.180	0.210	0.210	13.30	6.14	0.083
Oil for Engines.....	0.030	2.19	0.086	0.021	0.013	0.057	0.026	0.029	1.84	.81	0.011
Oil for Cars.....	0.022	1.61	0.022	0.035	0.026	0.011	0.026	0.025	1.58	1.04	0.014
Damages to persons and prop'ty	0.037	2.70	0.023	0.008	0.053	0.058	0.045	0.041	2.60	.81	0.011
Superintendence.....	0.011	.80	.....	0.015	0.028	0.006	0.014	0.049	3.10	3.41	0.046
Contingencies.....	0.011	.81	.....	0.032	0.062	0.006	0.025	0.031	1.97	6.81	0.092
Total.....	$1.011	$73.79	.....	$0.839	$1.405	$1.159	$1.312	$1.418	$89.51	$84.81	$1.146

* Average of five roads from Albany to Buffalo

We cannot arrive so well at the cost of transportation upon the Massachusetts roads, as no apportionment of expenses is made under the laws there.

It would appear in theory, and the result is confirmed by practice, in this State, that such an apportionment can be made. The freight business of a road of any importance is generally conducted separately, except the pumping of water, switching, maintaining way, superintendence, &c., and these charges should be taxed upon freight transportation in proportion to the receipts from that source. Fuel must be measured separately for each class of trains. But the expense for stations, engines, cars, conductors, engineers men for unloading, and damages, can all be easily divided upon any large road.

The last report of the Baltimore and Ohio road gives the items of expenses of freight transportation, as follows:

	Per. 100 tons one mile.
Repairs of road, watching Bridge and pumping water	$0.347
Repairs of engines	.104
Wood and coal	.071
Labor on do.	.023
Oil and waste for engines	.036
Engineers and firemen	.097
Repairs of cars	.084
Oil for Cars	.004
Conductors and Brakemen	.164
Pay of Agents and Clerks	.023
Labor in transportation department	.032
Other general expenses	.048
	.933

The following estimate is made for the expense of running a freight train upon the Reading railroad, and appears in the report of that road for 1852:

Wages of	
1 Engineer	$3.00
1 Fireman	1.50
1 Conductor	1.60
3 Brakemen, $1.25	3.75
4 3-10 cords of wood including firing up,—$4.32	18.58
Oil and Tallow for engine and tender	1.16
Oil and Grease for cars	1.39
Repairs for engine and tender 95 miles	4.89
" of cars 97.1 tons at '139	13.51
Depot hands and expenses	22.49
Water used	.30
Damages and renewals	3.08
Equal to 77.5 cents per ton	$75.25

This does not include maintainance of way, superintendence, repairs of machinery in shops, office and Agents' expenses, etc.

THE FREIGHT ENGINE.

The freight engine must be ultimately adapted for burning coal of the semi-bituminous description. The want of favorable feeling on the part of builders, and the fact that many of the country roads are still able to supply themselves cheaply with wood, has retarded the introduction of the coal engine, but the necessity for its general use will soon become established. The relative economy of anthracite to pine wood is stated by Mr. Nicolls, Superintendent of the Reading road, as 1 ton of 2,240 lbs. of the former to 1¾ or 2 cords of the latter. The Cumberland coal is as 1 ton to 2½ cords. From the experiments made upon the Boston and Maine railroad, in January, 1850, upon burning coal, the result appeared as very nearly 1 ton of anthracite to 1 cord of spruce. But sufficient importance was not attached to the fact of a great loss in the coal engine from running only a few cars and being compelled to wait much of the time out upon the track, wherein much coal was burned to no advantage. The result upon a great road, using both kinds of fuel, must determine the economy of each, and it is to Baltimore and to Philadelphia where we must look for information. The principle of the motive power on their great roads has been to combine the utmost strength, traction and adhesion for their engines. Strong and plain machinery has always been a good feature with them. There is but little "dead weight"—everything aids in the production of power, and the "huge steam tugs with sand boxes," as Senator Foote styles them in his report upon French's plan, still hold their standing as the most efficient and economical engines in the world. Baltimore and Philadelphia deserve the credit of the Freight engine of this country.

From the curves upon the Southern roads the engines have had their drivers clustered together forward of the furnace, thereby covering but a short rectangle upon the rails. The adhesion has been increased, experimentally, by increasing the number of coupled drivers, until the fact has become established that the whole weight of an engine supplies more adhesion than is ever required, except with an extremely large cylinder and small wheel. The distribution of the weight of an engine, upon 8, 10 or 12 points of the track, was a valuable idea, and belongs to the Philadelphia builders. The inside connection, with its unsafe, heavy and inaccessible parts, and its "elevated boiler," has never gained any ground in the south. We can say that the truck, the outside cylinder, the coupled drivers, the chilled plate wheel, the chilled tire, the coal engine and the heater, have been either first applied or generally developed in the States south of New York, and these particular improvements form nearly all of the distinctive features of American motive power.

The freight engine, then, should burn semi-bituminous or bituminous coal; its weight distributed on say ten wheels, six of which may be coupled for all necessary adhesion; should have a "feed heater," (an excellent one has been invented by Mr. L. B. Tyng, of Lowell); a say 26 in. stroke and 4½ feet wheels; the chilled slip tire and flanges on all the wheels. The truck to be adapted to take its load on its centre pintal. The size of the freight engine may be increased at pleasure to 30 or 33 tons weight if necessary, and this, moreover, upon a narrow track. The exact dimensions of boiler and cylinders cannot be stated to apply in all situations, but the practical standard of the Baltimore and Ohio engines will be found in our last weeks' paper, page 391. The cylinders should lie as nearly as possible in a horizontal line, without making the truck wheels too small; the parts should not be unduly heavy, and the drivers should not be combined in truck frames, as the weight of the parts is increased to an undue extent without any sensible advantage.

This general plan of a freight engine is of the kind which involves the fewest parts, the strongest and cheapest construction, and the least expense for operation and maintenance. It is *the engine* in all essential respects, which has become the standard upon the greatest freight lines of the country.

The Erie road have made a general application of the centre bearing truck, and of flanges to all the drivers.

The freight engine, it would appear, requires distinctive features to adapt itself to its business. Common custom, in some parts of the country, has been to make an engine of the same style for freight as for passengers, with a difference only of six inches or one foot in the size of the drivers, and one-eight inch difference in the lead of the valve.

Gauge of Railroads.

The discussion of the respective merits of the broad and narrow gauges has been pretty fully made in England and in this country. It is not so much the object of this article to enter anew upon this discussion, as to show the *results* of the broad gauge system in this country. There are now six different track gauges in use in the United States, viz: the 4 feet 8½ inch, or common gauge; the 4 feet 10 inch, which is the New Jersey and a part of the Ohio gauge; the 5 feet, which is the East Tennessee, Western Virginia, and North of Georgia guage; the five feet four inches which is the grade of the Scioto and Hocking Valley road; the 5 feet 6 inch, which is the Maine and Canada gauge, and the 6 feet, or New York and Erie gauge.

A report made upon the gauge to be adopted for the New York and Albany railroad, made by Edwin F. Johnson, C. E., in August, 1842, presented nearly all of the claims contested by the advocates of the broad gauge. In the report of A. C. Morton, Esq., upon the gauge of the Atlantic and St. Lawrence railroad, some few additional claims were made, and some additional statements offered. We propose to show that, setting aside the assumed intrinsic merits of the broad gauge, that not but a few of the advantages claimed for it have been realized in the practice of the New York and Erie railroad.

We propose to draw the successive statements made in favor of the broad gauge, from Johnson's report. He stated the reason of the first adoption of the 4 71-100 feet gauge to be in the fact of a cheaper application of English engines to our roads; but that, at his time, our own builders had become acquainted with what was required for a broad gauge engine. The Erie road has an assortment of engines comprising nearly every variety of construction, and it seems from this that the knowledge of the best engine remains yet to be developed by experiments.

The first point claimed was, the more equal bearing of the weight upon the wheels of the cars, as the depression of either side of the track, being distributed over a broader base, would reduce the angle of transverse inclination, and consequently the unequal adjustment of the weight upon one or the other wheel of the car. As the extra weight, however, of the Erie rolling stock brings the maximum weight on each wheel, *on a level track*; the *usual* weight exceeding the *maximum* weight on the most uneven narrow track,—the broad gauge deserves what small advantage can be attached to this point.

Another claim was, in the reduction of the axle friction by the admission of larger car wheels. To show what has been the practice of the Erie road, we will say that the freight car wheels have heretofore been 30 inches in diameter, and the passenger car wheels 36 inches in diameter, but that now, while many narrow gauge roads are increasing the size of their car wheels, the Erie Company

are fixing a standard of 33 inches for the wheels of both freight and passenger cars.

The next advantage claimed, was an additional width of freight car, allowing the better stowage of bulky freight, &c. The Erie freight cars *are not*, however, any wider than those upon the narrow eastern roads.

From this it was shown that the same freight could be carried in a shorter train, and, therefore, with less atmospheric resistance, etc., but as the *practice* has been to use the common width of car, this advantage is lost.

The greater comfort of wide passenger cars is undeniable, but this can be had on any road, by increasing the proportion of *dead weight* to *live weight*, as the Erie road have done in their cars. The Erie cars, however, were intended to accommodate three passengers in each seat, and it was urged that, thereby, the relative dead weight would be reduced. But the seats of the wide gauge cars are not wide enough for three passengers, and are wider than is necessary for two.—The narrow gauge cars, of many roads, having an extreme width of 9 feet 6 inches to 10 feet, furnish the most ample accommodation for two passengers in each seat. From the report of the Erie road to the Legislature, for the year 1852, we find the average number of passengers carried pr. train to be 76½, and the average weight of passenger trains, without passengers or baggage, to be 96 tons, or 1¼ tons dead weight per passenger. In the year 1850 the proportion was 1,23 tons per passenger. Now, by the Hudson River company's repors for 1852, the average of passengers pr. train was 85,4, and the average weight of trains 78¾ tons, (exclusive of passengers, etc.,) or a proportion of '92 tons per passenger. The following shows the corresponding facts on four out of the five roads from Albany to Buffalo, made up from their reports for 1852:

	Average passengers per train.	Average weight of passenger tra'ns without passengers or baggage.
Utica and Schenectady....	114·3	93
Syracuse and Utica.....	108·8	78
Rochester and Syracuse....	88·3	76
Buffalo and Rochester....	100.9	64
	412·3	311
Average.....	103·1	77¾

or but ¾ tons dead weight per passenger carried. On many of the New England roads the proportion of dead weight is still less.

An objection to the wide gauge is that the fear of insecurity of outside bearings has driven the Erie company into the general use of inside bearing axles, involving more friction and much more inconvenience and expense in oiling.

One great claim for wide gauge roads has always been the advantage of increased room for the arrangement of the machinery of the engine.

In Mr. Morton's report, pp. 13, he sums up the supposed disadvantages of outside cylinder engines, and says, "these it is generally admitted, are objectionable on many accounts, and are likely soon to get out of use, particularly for engines designed for high speed."

Now, this matter needs full explanation to set at rest, if possible, the question of the incapacity of the narrow gauge engines, and the injurious tendency of the outside cylinder engine.

The London and North Western company have engines with cylinders of 18in. by 24in., and driving wheels of seven feet six inches, and of 8 feet diameter. These are *inside* connected. The limit of the diameter of boiler for a narrow gauge road is not under fifty inches, nor the width of the furnace grate less than forty-two inches. These dimensions are ample, and easily obtainable without "crowding."

The Baltimore and Ohio road has engines with cylinders of 20 inches in diameter, the engines being of 30 tons weight. This is a narrow gauge road. The boilers are forty-eight inches in diameter, and might have been two or three inches larger, if desired.

The Hudson River road is stocked with express engines of 15½ and 16½ inch cylinders, and six feet six inches, to 7 feet drivers. There is abundance of room for the arrangement of their machinery. These are outside connected engines, running on a narrow gauge.

The Western railroad of Massachusetts have two of their best express engines with 1175 square feet of heating surface, and with six feet ten inch drivers. With one engine the drivers are coupled.

As to the injurious tendency of outside connected engines, it may be said of the Baltimore and Ohio engines which work upon the hardest line in the country, that the expenses of their repairs is 40 per cent less than for the Erie engines. The Baltimore and Ohio engines are outside connected, the Erie engines are about one half inside connected, and a large part of the balance have the "half crank," which is in reality a connection inside of the wheels. The injurious effects of the outside connection, if any, must operate upon the machine as well as on the road. The Great Albany and Buffalo line is stocked with outside connected engines; so is the Hudson River, the New Jersey lines, the Pennsylvania, the Springfield, Hartford and New Haven, and others. Upon none of these lines was there any *necessity* for adopting the outside connection. The Reading road has mostly outside connected engines, but has some inside connected engines, with 18 inch cylinder, and having ample room for the work. Rogers, Ketchum, and Grosvenor, build the most of their machines with outside cylinders; Norris, Baldwin, and Winans,—all build outside connected engines, to the exclusion of every thing else, and this, too, where the room afforded by the gauge forms no part in the consideration of the question, as to the best plan. The English roads, particularly the London and Northwestern road, have built and ordered many outside connected engines of late years. Now, no mechanic will undertake to state the *amount* of the "dangerous oscillation, attributed to the outside connection, while the plan saves the weight, cost, friction and danger of a crank; reduces the height of the boiler nearly *one foot* which is enough to offset the advantage of a broad gauge engine, with inside cylinders; it reuders the work more accessible and is, every way, the lightest and cheapest connection, and just as efficient as any other.

Compare the results of the motive power, on the two gauges. The Erie requires an engine of 17 inch cylinder, and 28 tons weight to draw an average train of 77 passengers at a rate of thirty-three miles per hour, on the long levels of the Delaware and Susquehanna divisions; the 15½ inch cylinder, 22 ton engine, draws an average train of 85 passengers 45 miles per hour, over a narrow road, having but little advantage in other respects so far as the application of motive power is concerned. This is the case upon the Hudson River road, upon the Albany and Buffalo line, and upon the New Jersey lines, the same class of lighter engines draw a greater number of passengers at a speed greater than is made on the Erie road. The freight drawn on the Reading and Baltimore and Ohio roads is far greater per train with twenty-seven ton engines, than upon any part of the Erie road with 33 ton engines. Thi iss accounted for with the other facts, from the greater resistance of the broad gauge, as proved by every trial made.

It has been stated that narrow gauge engines require an extension of their tubes to get sufficient boiler capacity. We have already stated that the narrow gauge gives room for a fifty inch boiler, and this is larger than is usually adopted on any gauge. The general addition to the diameter of the Erie boilers, towards realizing this advantage of increased space, has not exceeded the common standard of a 42 inch boiler by more than six inches, and has generally been but two inches greater. And yet the common class of Erie engines have the greatest proportion of long tubes of any road in the country, with the exception of the Balt. and Ohio and Reading roads.

Among the principal and primary claims advanced for the broad gauge, was the adaptability of large drivers, reducing the strain and wear of the working parts, increasing the speed of the train, etc. The practice has however been against the developement of this advantage. The 6 feet driver is now the standard on most passenger roads; while the Hudson River and some other roads, all of narrow gauge, have adopted the six and a-half feet and the 7 feet drivers.

The standard on the Erie road is six feet for passenger engines and five feet for freight. Only two engines are on the road, having seven feet drivers, and these are seldom used except on *gravel trains, wood trains, etc.*

The *results* have been every way in favor of the narrow gauge, so far as regards its application to our roads.

The increased capacity of a boiler on the broad gauge engine cannot be realized without increased weight, aud this same obstacle of weight is always in the way of any great increase in the bapacity of motive power. The possibility of the use of a larger boiler also suggested the allowance of a larger blast pipe, and yet the Erie engines have blast-pipes rather under the size due to their capacity of cylinders.

The plain disadvantages of the broad gauge, as exhibited in the results of working it here, have been,—increase of weight on each wheel, increased resistance from an indirect application of draught upon every variation in the axis of the train; and with these, the consequent result of an expensive application of motive power.

The discussion of any practice of changing a common gauge to 4 feet 10 inches, or 5 feet, is idle. It can have no advantage under any probable contingency of traffic, on any road, unless the cir-

cumstantial one of affording a connection with some other one, unwisely and previously afflicted with a disturbing gauge. Z. C.

Long Island Railroad.

The recent annual report of this Company show the earnings of the past year to have been $217,566 23, showing a gain over the previous year of $25,120 59.

The comparative earnings of the last five years ending April 1, have been:

	1849.	1850.
Passengers	$110,910 78	$126,666 97
Freight	45,770 86	52,899 17
Mails	5,303 75	4,329 00
Express	1,467 45	637 55
Total	$163,443 84	$184,532 69
Incr'se pr. annum		$21,088 85
	1851.	1852.
Passengers	$134,564 59	$150,139 32
Freight	53,550 05	63,097 91
Mails	4,329 00	4,328 00
Express	.....	.....
Total	$192,443 64	$217,566 23
Incr'se per annum	$7,91 95	$25,120 59

The cost of operating the road during the year ending April 1, 1853, was $180,292 39, and other disbursements for interest, rent of Jamaica road, &c., carry the amount of expenditures to $251,456 14, showing a loss of $33,890 on the year's business. The report says that "the expenditures include many items which do not properly belong to one year's business, which have resulted from permanent improvements made, and increased motive power and cars provided."

The entire liabilities of the road, exclusive of stock, is $645,867 39. The capital stock is $3,000,000. The present available funds of the company amount to $51,034, a portion of which will be required to pay for cars and engines, rails, etc.

The number of miles run by passenger trains was 133,697, and by all trains 238,117 miles.

New Jersey Central Railroad.

We publish this week the advertisement of the above company; offering for sale $950,000 of their unissued stock, for the purpose of constructing the double track now imperatively called for by the actual and prospective increase of the business of the road.

On the first of April last the financial condition of the company was as follows:

Capital stock	$1,034,700 00
Mortgage bonds, 7 per cent	1,500,000 00
Other bonds, 6 per cent	118,000 00
Bills payable and balance due	249,022 04
Balance of earnings over dividend.	1.006 85
Total	$2,897,728 89

This was represented by the following property:—

Railroad average $37,800 per mile.	$2,879,866 64
Ferry interest and boats	140,900 00
Station houses, shops, &c	78,000 00
Land at Elizabethport	55,016 77
Equipment	318,504 64
Materials, wood, coal, cash, &c	25,420 84
Total	$2,897,728 89

The road extends from Elizabethport to Easton, Pa., a distance of 63 miles. It has an excellent local business, and from this source alone the several divisions have earned 7 per cent interest upon their cost, as fast as they have been opened. But it is the *through* business from which a greater portion of the future income of the company will be received. Easton is the terminus of the Lehigh canal, and is soon to be the terminus of railroads penetrating to the Lehigh and Schuylkill coal fields. A connection will also be formed with the road in process of construction from the Water Gap to the Lackawanna coal fields; so that the Central road will form a trunk from the Delaware for roads penetrating all the Pennsylvania coal fields, and will enable New York to receive a steady supply of fuel for the entire year. At the present time there is only one continuous line of road from tide water to the coal fields—the Reading; so that New York is practically cut off from them for five months in the year. With a good road across New Jersey, we see no reason why it should not carry an amount of coal freight equal to the Reading. It would have a much more extensive source of supply. It has favorable grades none of which exceed twenty feet to the mile in the direction of the heavy traffic; and it is believed that no other road can be built across the State in the same general direction, having an equally favorable route.

It seems, therefore, that there is no better opportunity for the investment of capital in railroads than the one now offered. There is no doubt that the road will immediately, as soon as the connecting lines shall be opened, enter upon a business equal to the capacity of a first-class double-track road. Its business will be ample and regular at all seasons of the year, and may be made equal to that of the Reading, which now pays the interest on an investment of nearly twenty millions of dollars.

Canal Tolls and Trade.

The following figures show the amount of tolls collected on the State Canals, during the second week in June, and the aggregate up to June 14, for a series of years—

	Second week in June	Total to June 14.
1846	$83,531	$770,847
1847	149,785	1,016,298
1848	90,185	813,237
1849	9,242	794,138
1850	67,329	728,745
1851	86,223	949,596
1852	90,303	738,395
1853	106,106	780,655
Increase in 1853 to June 7		$26,457
Increase for 3rd week in June '53		15,803
Total increase		$42,260

This increase is all on down freight from other States, and on merchandise sent back—the tolls on down freight from this State falling off considerably, as compared with last year—as will be seen by the following comparative results:

	1852.	1853.	Dec'se	Incr'e
On up freight, merchandise	$215,181	$249,091	....	$33,901
On down fr'ht from other States	285,725	299,069	....	13,344
On down fr'ght from this State	237,489	232,495	4,994	....
Total	$738,398	$780,655	....	$47,254
Decrease				$4,994
Increase				$42,260

Thus it is that the producers of other States continue to use, and to contribute more and more every year to the revenues of our canals—a tribute which is willingly paid and which would be increased in an incalculable ratio by the enlargement, and the cheapening of transportation which would result from it.

Notwithstanding the free competition of railroads with the canals, in the transportation of merchandise, it will be seen that the latter have done a much larger business this year than the last.

Adhesion of Engines.

By a fortunate concurrence of physical facts, it results that the machinery proper for a given size of locomotive, if properly proportioned, has always a weight sufficient to create an adhesion equal to the tractive power of the engine. The tractive power, which forms the original element of the locomotive, is the subject involved in the plans of the designer; the adhesive power is merely circumstantial,—the builder never adding or deducting from his dimensions with reference solely to their weight. This concurrence of physical facts is such, that an ordinary engine working at its most economical velocity, or 10 miles per hour, requires the adhesion of about ¾ of the weight of the whole machine to realize its full tractive power, and at higher speeds the adhesive weight may be much less, say one-third of the weight. It is an object to divide the weight of an engine on several points upon the track, say eight to twelve, and it is desirable to use as few of the wheels for drivers as are sufficient for the purpose, on account of the extra friction involved in the use of coupled drivers, and, as there is always a *surplus of weight* available for adhesion, the custom is to use two, four or six drivers for this purpose,—according to the duty of the engine. An engine has always nearly the same adhesion on an incline as on a level, deducting only the actual weight lost by the inclination of the engine, which is 1-50, 1-100, or any other fraction, according to the fraction of the elevation divided by length of plane.

Hence tne reason why an engine does not draw as much on an incline as on a level is not from any "want of adhesion," but because the actual resistanee being greater, the traction is absorbed by fewer tons of load, and if ¾ the weight of the engine is needed for adhesive weight, under the most effective working velocity, it follows that the adhesion would not be impaired upon any inclination less than 1 in 4. Hence expedients for increasing the adhesive power of engines are useless, after ¾ of the weight of the engine has been adjusted on driving wheels. The very fact of an increase of traction involves, of necessity, the corresponding adhesion; the former cannot exist without the latter, while the latter may often be in excess of the former.

The plan of Mr. French, for the means of testing which an application was made to the last Congress, cannot, for the above reasons, become generally useful. It involves practical difficulties also, which would operate against its use. The plan consists in running an engine upon a track projecting, on each side, beyond the sleepers, and in adapting friction rollers to work beneath the rails; the connection being made between the rollers and the engine by a connecting link, upon which a power may be applied to increase the adhesion at pleasure. The plan does not increase

the *power* of the engine, since mere adhesion is not power. There are an abundance of engines in daily use, able to surmount any grade of less than two hundred feet per mile, and they will draw a load to the extent of their tractive power, which is all they can do upon a level.

American Railroad Journal.

Saturday, June 25, 1853.

Railway Share List.

We give, in our present issue, a *Share List* of railways in the United States, which presents what was never before attempted,—a complete view of their financial condition, as well as the current value of their shares. We shall add, in our next number, a list of the leading bonds before the market.

We solicit the particular attention of railroad companies to this List, for the purpose of correcting any errors in our tables, or supplying any omission that may exist in them. As only two or three States require returns to be made, we are compelled to depend upon the reports of companies for a knowledge of their condition. We shall esteem it a great favor if railroad companies will supply us with the necessary data for completing our tables, at their earliest convenience.

Cincinnati Western Railroad.

The object of this proposed road is to open a new outlet for the White Water Valley, and to form an additional trunk line for the roads of Eastern Indiana, into Cincinnati. It will form a nearly straight line between New Castle and Cincinnati, of about 75 miles, as we learn from a recent survey of the route. It is claimed that it will effect a saving in distance of some 25 miles over any road in operation or progress between either New Castle or Cambridge, Indiana, and Cincinnati. The greater part of the route is through an exceedingly fertile, and well settled country. It will cross the Junction and Indiana Central roads, and connect with the Cincinnati and Chicago road at New Castle. Its whole cost is estimated by the company's engineer at $2,124,237.

We learn that a large amount of stock has been subscribed; that the whole line has been let to DeGraffe & Co, one of the leading contracting firms in the west; and that the section between New Castle and Cambridge is so far advanced toward completion, that it will be probably ready for business by the 1st of January. For this part of the line, 13 miles, the iron has just been purchased, and is immediatelv to be forwarded from this city, where it is now lying. The parties having this road in charge, at the head of which is the Hon. Caleb B. Smith, are men of great energy, and they express a determination of pushing the work forward with all possible dispatch. It is their intention to have the entire line opened for business by the first of January, 1855.

Terre Haute and Alton Railroad.

The result of the recent election for Directors of this road, held in Charleston, Ill., on the 6th inst., was as follows:—Simeon Ryder, Robert Smith, Wm. M'Bride, Alton, Ill.; C. P. Huggins, Bunker Hill; John S. Heyward, Hillsboro'; H. J. Ashmore, Charleston; Isaac Sanford, Edgar County; John Stryker, Rome, N. Y.; Edwin C. Litchfield, E. B. Litchfield, John B. Jervis, Thos. C. Durant, Henry Ten Eyck, N.Y.

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of $100.

NAME OF COMPANY.		Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equipm't.	Gross Earnings in 1852.	Net Earnings in 1852.	Dividend, 1852.	Price of Shares.
Atlantic and St. Lawrence...	Maine.	150	1,417,587	3,000,000	4,649,392	200,233	.....	none	95
Androscoggin and Kennebec..	"	55	809,878	905,300	1,994,429	131,006	.....	none	30
Kennebec and Portland.....	"	72	876,741	800,000	2,180,000	133,338	.....	none	40
Port., Saco and Portsmouth..	"	51	1,355,500	123,884	1,459,384	208,669	.....	6	100
York and Cumberland,.....	"	20	227,981	291,200	In progres	15,694	.....	none	40
Boston, Concord and Montreal.	N. H.	93	1,649,270	622,000	2,540,217	150,538	79,659	none	53½
Concord	"	35	1,485,000	none.	1,485,000	305,805	141,836	10	108
Cheshire	"	54	2,078,625	720,900	3,002,094	287,768	55,266	5	....
Northern	"	82	3,016,634	.....	.....	328,782	163,075	5	58
Manchester and Lawrence....	"	24	717,543	.....	.....	.....	.....	6½	99
Nashua and Lowell.....	"	15	600,000	none.	651,214	132,545	51,513	8	108
Portsmouth and Concord....	"	47	.....	.....	1,400,000	.....	.....	none	....
Sullivan.....	"	26	.....	.....	673,500	.....	.....	none	9
Connecticut and Passumpsic..	Vt.	61	1,097,600	550,000	1,745,516	.....	.....	none	46
Rutland	"	120	2,435,328	1,964,588	.....	324,790	165,340	none	35
Vermont Central.....	"	117	8,500,000	3,500,000	12,000,000	.....	.....	....	17½
Vermont and Canada.....	"	47	1,500,000	.....	1,500,000	Leased to	the Vt. C	ent.	101½
Western Vermont.....	"	51	392,000	700,000	.....	Recently	opened.	none	....
Vermont Valley	"	24	.....	.....	.....	.....	.....	none	....
Boston and Lowell.....	Mass.	28	1,830,000	.....	1,995,249	388,108	130,881	7½	100
Boston and Maine.....	"	83	4,076,974	150,000	4,092,927	659,001	338,215	7	109
Boston and Providence.....	"	53	3,160,390	390,000	3,546,214	429,484	212,625	6	88½
Boston and Worcester.....	"	69	4,500,000	425,000	4,845,967	758,819	331,296	7	104½
Cape Cod branch.....	"	28	421,295	171,800	633,906	60,743	30,056	2½	40
Connecticut River.....	"	52	1,591,100	193,500	1,801,946	229,004	72,028	5	57½
Eastern.....	"	75	2,850,000	500,000	3,120,391	488,793	241,017	7½	95
Fall River.....	"	42	1,050,000	none.	1,050,000	229,445	99,589	8	107
Fitchburg.....	"	66	3,540,000	100,000	3,633,673	574,574	232,787	6	99¾
New Bedford and Taunton..	"	20	500,000	none.	520,475	164,230	43,950	7½	117
Norfolk County.....	"	26	547,015	819,743	1,245,927	67,251	23,415	none	67
Old Colony.....	"	45	1,964,070	282,300	2,293,534	322,213	101,510	none	86½
Taunton Branch.....	"	12	250,000	none.	307,186	137,406	24,399	8	....
Vermont and Massachusetts..	"	77	2,140,536	1,001,500	3,203,333	218,679	18,648	none	17½
Worcester and Nashua.....	"	45	1,134,000	171,210	1,321,945	162,109	66,900	4½	60
Western	"	155	5,150,000	5,319,520	9,953,759	1,339,873	682,195	6½	99¾
Stonington.....	R. I.	50	.....	.....	.....	.....	.....	....	56
Providence and Worcester...	"	40	1,457,500	300,000	1,731,498	253,690	139,514	6	....
Canal.....	Conn.	45	.....	.....	.....	.....	.....	10	....
Hartford and New Haven....	"	62	3,000,000	472,000	.....	600,408	332,223	none	124
Housatonic.....	"	110	.....	.....	2,500,000	329,041	168,902	none	....
Hartford, Prov. and Fishkill..	"	50	.....	.....	In progres	.....	.....	none	....
New London, Wil. and Palmer	"	66	558,861	800,000	1,511,111	114,410	.....	....	....
New York and New Haven...	"	61	2,992,450	1,641,000	4,825,937	814,714	443,993	7	109
Naugatuck	"	62	926,000	440,000	.....	.....	.....	....	....
New London and New Haven.	"	55	750,500	650,000	1,380,610	Recently	opened.	none	45
Norwich and Worcester.....	"	54	2,121,110	701,600	2,596,488	267,561	116,965	4½	56
Albany and Schenectady.....	N. Y.	17	1,000,000	685,301	1,774,584	296,112	164,448	8	145
Buffalo and New York City..	"	91	900,000	1,550,000	2,550,500	Recently	opened.	none	85
Buffalo, Corning and N. York.	"	132	.....	.....	In progres	.....	.....	none	65
Buffalo and Rockester.....	"	76	1,825,000	184,903	2,415,014	619,976	415,323	10	182
Buffalo and State Line.....	"	69	879,636	872,000	1,921,270	Recently	opened.	....	130
Canandaigua and Niagara F..	"	50	.....	.....	In progres	.....	.....	....	....
Canandaigua and Elmira.....	"	47	425,509	582,400	987,627	76,760	39,360	none	68
Cayuga and Susquehanna....	"	35	687,000	400,000	1,070,786	74,241	23,496	none	....
Erie, (New York and Erie)...	"	464	9,612,995	24,003,865	31,301,806	3,537,766	1,691,623	7	80½
Hudson River.....	"	144	3,740,515	7,046,395	10,527,654	1,063,659	338,783	none	72½
Harlem	"	130	4,725,250	977,463	6,102,935	681,445	324,494	5	64½
Long Island.....	"	95	1,875,148	516,246	2,446,391	205,068	44,070	none	36
Ogdensburgh (Northern).....	"	118	1,578,311	2,780,760	4,933,029	435,845	176,123	none	38½
Oswego and Syracuse.....	"	35	350,000	201,500	607,803	90,616	43,609	4	70
Rochester and Syracuse.....	"	184	5,132,990	700,123	6,016,778	988,366	549,824	8	156
Rutland and Washington.....	"	60	850,000	400,000	1,250,000	Recently	opened.	....	....
Saratoga and Washington....	"	41	899,800	940,000	1,832,945	173,545	135,017	none	30
Syracuse and Utica.....	"	53	2,400,000	126,000	2,661,477	616,918	376,025	10	182
Troy and Rutland.....	"	32	237,690	100,000	329,577	Recently	opened.	....	33
Troy and Boston.....	"	39	430,936	700,000	1,043,357	Recently	opened.	none	....
Utica and Schenectady.....	"	78	4,124,000	none.	4,093,273	1,029,774	724,770	10	195
Watertown and Rome.....	"	96	1,011,940	650,000	1,693,711	225,152	116,706	8	109
Camden and Amboy.....	N. J.	65	1,500,000	.....	4,327,409	1,388,385	478,413	10	150
Morris and Essex.....	"	45	1,022,420	128,000	1,220,325	140,154	80,351	4	....
New Jersey.....	"	31	2,197,840	476,000	3,245,720	603,942	316,259	10	148
New Jersey Central.....	"	63	986,106	1,500,000	2,379,880	260,899	124,740	3½	....
Cumberland Valley.....	Penn.	56	1,184,500	13,000	1,265,143	118,617	76,890	5	....
Erie and North East.....	"	20	600,000	.....	750,000	Recently	opened.	....	125
Harrisburgh and Lancaster...	"	36	783,950	688,051	1,609,494	200,249	106,932	8	....
Philadelphia and Reading....	"	95	6,656,332	10,427,800	17,141,987	2,480,626	1,251,987	7	92¼

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of $100.

NAME OF COMPANY.		Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equipm't.	Gross Earnings in 1852.	Net earnings in 1852.	Dividend, 1852.	Price of shares.
Philad., Wilmington and Balt.	Penn.	98	3,850,000	2,403,276	6,813,839	667,785	383,501	5	71
Pennsylvania Central	"	250	9,768,153	5,000,000	15,600,000	1,943,827	617,625	....	100
Philadelphia and Trenton	"	30	....	....	....	....	....	....	....
Pennsylvania Coal Co	"	47	....	....	....	....	....	....	....
Baltimore and Ohio	Md.	381	9,188,300	9,827,123	19,542,307	1,325,563	615,384	7	71
Washington branch	"	38	1,650,000	....	1,650,000	348,622	216,237	8	....
Baltimore and Susquehanna	"	57	....	....	....	413,673	152,536	....	42
Alexandria and Orange	Va.	65	....	....	In prog.	....	....	....	....
Manassas Gap	"	27	....	....	In prog.	....	....	....	....
Petersburgh	"	64	....	....	....	....	....	....	....
Richmond and Danville	"	73	1,372,324	200,000	In prog.	....	....	....	....
Richmond and Petersburgh	"	22	....	....	....	....	....	....	....
Rich., Fred and Potomac	"	76	....	....	....	....	....	....	....
South Side	"	62	1,328,722	800,000	In prog.	....	....	....	....
Virginia Central	"	107	1,400,100	446,036	In prog.	176,485	74,902	none	....
Virginia and Tennessee	"	60	3,000,000	1,500,000	In prog.	....	....	none	....
Winchester and Potomac	"	32	180,000	120,000	416,532	89,776	....	12	....
Wilmington and Raleigh	N .C.	161	1,338,878	1,134,698	2,965,574	510,038	153,898	6	....
Charlotte and South Carolina.	S. C.	110	....	....	....	....	....	....	....
Greenville and Columbia	"	140	1,004,231	300,000	In prog.	....	....	....	....
South Carolina	"	242	3,858,840	3,000,000	7,002,396	1,000,717	609,711	7	125
Georgia Central	"	191	3,100,000	306,187	3,378,132	945,508	508,625	8	102
Georgia	"	211	4,000,000	1,214	....	934,424	456,468	7½	....
Macon and Western	"	101	1,214,283	168,000	1,596,283	296,584	153,697	9	109
Muscogee	"	71	....	....	In prog.	....	....	....	....
Wilmington and Manchester	"	....	....	....	"	....	....	....	....
Southwestern	"	50	586,887	150,000	743,525	129,395	71,535	8	....
Alabama and Tennessee River	Ala.	55	....	....	In prog.	....	....	....	....
Memphis and Charleston	"	93	776,259	400,000	In prog.	....	....	....	....
Mobile and Ohio	"	33	879,868	....	In prog.	....	....	....	....
Montgomery and West Point.	"	88	688,611	....	1,330,960	173,542	76,079	8	....
Southern	Miss.	60	....	....	....	....	....	....	....
East Tennessee and Georgia	Tenn.	80	835,000	541,000	In prog.	....	....	....	....
Nashville and Chattanooga	"	125	2,093,814	850,000	In prog.	....	....	....	....
Covington and Lexington	Ky.	....	1,430,000	900,000	In prog.	....	....	....	....
Frankfort and Lexington	"	28	....	....	....	87,421	44,250	....	75
Louisville and Frankfort	"	65	....	....	....	....	....	....	....
Maysville and Lexington	"	....	....	....	In prog.	....	....	....	....
Cleveland and Pittsburgh	Ohio.	100	1,239,454	1,371,000	2,963,756	194,429	123,306	6	102
Cleveland, Painesv. and Ash.	"	71	....	....	....	....	....	....	....
Cleveland and Columbus	"	135	3,027,000	408,200	3,655,000	777,793	483,483	12	132
Columbus, Piqua and Indiana.	"	....	....	....	In prog.	....	....	....	....
Columbus and Lake Erie	"	61	....	....	....	....	....	....	....
Cincinnati., Ham. and Dayton	"	60	1,694,000	906,000	2,600,000	321,793	200,967	....	115
Cincinnati and Marietta	"	....	....	....	In prog.	....	....	....	....
Dayton and Western	"	40	310,000	550,000	925,000	Recently	opened.	....	80
Dayton and Michigan	"	20	....	....	In prog.	....	....	....	....
Eaton and Hamilton	"	36	....	....	....	....	....	....	67
Greenville and Miami	"	31	....	....	....	....	....	....	....
Hillsboro	"	37	....	....	In prog.	....	....	....	....
Little Miami	"	84	2,370,784	....	2,634,157	526,746	314,670	10	120
Mansfield and Sandusky	"	....	900,000	1,000,000	1,855,000	....	....	....	....
Mad River	"	167	1,860,500	....	....	565,751	....	....	....
Ohio Cental	"	57	....	....	In prog.	....	....	....	....
Ohio and Mississippi	"	....	....	....	"	....	....	....	....
Ohio and Pennsylvania	"	187	1,750,700	2,450,000	....	Recently	opened.	....	....
Ohio and Indiana	"	....	....	....	In prog.	....	....	....	....
Scioto and Hocking Valley	"	....	....	....	"	....	....	....	....
Toledo, Norwalk and Clevel'd	"	87	552,000	800,000	1,317,140	Recently	opened.	....	150
Xenia and Columbus	"	54	1,092,137	119,500	1,257,714	237,506	135,363	15	....
Evansville and Illinois	Ind.	31	....	....	In prog.	....	....	....	....
Indiana Central	"	....	....	....	"	....	....	....	....
Indiana Northern	"	131	....	....	"	Recently	opened.	....	....
Indianapolis and Bellefontaine	"	83	....	....	"	....	....	....	....
Lawrenceburg and Ind	"	....	....	....	In prog.	....	....	....	75
Lafayette and Indianapolis	"	62	....	....	....	Recently	opened.	....	....
Madison and Indianapolis	"	88	1,650,000	750,000	2,400,000	516,414	268,075	10	102
Peru and Indianapolis	"	40	....	....	In prog.	....	....	....	....
Terre Haute and Indianapolis	"	72	632,387	663,100	1,353,019	106,593	71,446	4	108
Rock Island and Chicago	"	....	....	....	....	....	....	....	....
Chicago and Mississippi	"	....	....	....	....	....	....	....	....
Galena and Chicago	Ill.	....	....	....	....	....	....	....	136
Illinois Central	"	92	1,932,361	500,000	In prog.	472,109	....	....	125
Michigan Southern	Mich.	315	2,499.410	2,629,000	6,430,246	292,187	293,046	....	145
Michigan Central	"	282	....	....	....	....	....	....	117
Pacific	Miss.	....	....	....	....	....	....	....	....

Stock and Money Market.

The past has been a very dull week in Wall st. The hot season has come upon us all at once, and great numbers of our active business men are preparing to leave the city, and are putting their affairs in trim for a summer vacation. There is an indisposition to enter upon new engagements, which will continue until the first of September. The fancy stock market, sympathising with the general curtailment in the regular departments of business, is unusually flat. There appears to be no disposition to operate, and prices are consequently receding. The impression is universal that we are to have a dull summer, as far as the stock and security markets are concerned. Money, on the other hand, is becoming more and more abundant, and seems likely to continue so for some time. The liabilities of the business community have been diminishing for some months past, and the comparatively fewer calls for money tend to increase the supply. Its abundance does not appear to give any vitality or impulse to operations in fancy stocks. The community has evidently become tired of the *fancies* now upon the market. Many of them have been held for years without yielding any return, and so general is the conviction of their worthlessness, that every body is anxious to get rid of them at some rate. Some *new* scheme is now wanted, of which vast results can be predicated, with a plausibility that is difficult to disprove, to give a new tone to the market. The old projects are worn completely threadbare. Ingenuity can no longer invest them with apparent merits. Every side of them has been shown up. Something *new* is wanting to excite attention and curiosity, and to provoke into action, parties already surfeited with the old.

The Erie dividend continues to be a leading topic in the street. All discussion and speculation may be to little purpose, till the facts of the case are known. It is of little use to suppose a case, that may be so soon disproved by the report of the Dividend Committee.—Still upon a *supposed* case, which is very likely to occur, we think it the true policy of the company to pass a cash dividend. Mr. Loder's recent letter in reply to our strictures gave the following as the condition of the company on the first day of March last, viz:

Capital stock	$9,612,995
Funded debt	18,003,688
Floating debt	3,684,947
Total cost	$31,301,630

Now we presume that no dividend will be made, without being accompanied with the proper evidence that one has been *earned*; that is, a dividend without a balance sheet, is no longer a supposable case. The point is, what is to be done, provided the increase of capital account leaves nothing for dividend. Will it be a dictate of sound policy to declare one under such circumstances? Certainly not; because it is not certain that one has been earned. Should there be nothing left after paying the interest on the indebtedness of the company, one of two things are true; either that no dividend has been earned, or that the construction is not closed; and until the construction account is closed, it is impossible to say what the net earnings of a road are. The double track is in progress, to be sure, but the cost of this is undoubtedly charged to a distinct account. If by taking the ordinary course pursued by other com-

panies, the Erie road has earned a dividend, let it be declared, by all means. If not, pass it. The true way will be, to treat the whole subject in a straight forward manner, to look at it as it is, and not through that enlarged vision which sees prospective results never to be realised; nor to examine it under the influence of past hopes or pledges. A dividend cannot increase nor diminish the earnings of the road; cannot destroy, nor add to, its future usefulness—and not the slightest reason now exists why the action of the directors should not be governed by the facts as they actually are.

We have no interest nor wish foreign to the best good of this road, and all parties connected with it. We desire its success as much as any one; and our opinion is, that its real success can be promoted in no manner so effectually as by omitting a dividend on the first of July. Whatever success may have crowned the efforts of the directors, there can be no doubt that they have given numerous pledges which they have not fulfilled, that subsequent results have shown many of their statements to have been incorrect, and that much dissatisfaction and distrust exists as to their management of the company's affairs. This feeling is wide spread. If it is without any good foundation, the public mind should be disabused. To do this (provided a dividend has not been earned beyond all dispute,) there is only one course left, and this is for the directors to say: "As charges have been brought against our management, and particularly in the payment of dividends which apparently have *not* been earned, we are going to probe the charges to the bottom, for the purpose of determining the true condition of the company's affairs; and as, for this purpose, we must take a longer time than till the first of July, we shall declare no more dividends till the result of our investigation makes our way clear." If the directors would have the moral courage to take this view of the subject, it would be an auspicious day for the Erie railroad. It would at once secure the public confidence in their *intentions*. It would not only strengthen the position of the company abroad, but would be worth twenty times the am't of the proposed dividend in its effects upon the securities of other roads. It would be an announcement of a sound policy which would be of incalculable advantage to our whole railroad system. It would show at least an intention to do the right thing. Its effect would be an immediate improvement in the securities of the company, and we think in the end it would help the *stock*. It would be hailed as a guarantee for the future good management of the road, and by dispelling the doubt and uncertainty that exists as to the real value of the stock, it would make its *market*, and *actual* value, the same. At the present time the stock has no firmness, nor will it ever have, if matters go on as they have done. The slightest rumor, or symptom of disturbance, in the money market, gives it spasms, and make it the constant sport of all the little panics, *tempests in teapots*, got up by operators in the street. From such a fate we should like to see the Erie road rescued. It is deserving a better one. It is the greatest monument of the kind in this country, if not in the world, and its financial condition, its management, and its reputation should correspond to the greatness of the work. We know that the road was built under great difficulties. We can very well accept excuses for past errors, that cannot be claimed for the future.

The directors must know that the eyes of capitalists of Europe, as well as of this country, are upon them, and that they are responsible to a wider tribunal than that composed of the few who may be loaded with the stock for purposes of speculation. Whatever they may do, we shall be satisfied, *provided* their acts reflect the *actual* state of the company's affairs.

Since the above was in type, the *postponement* of the July dividend has been publicly announced. As we were convinced that none had been earned, we are exceedingly gratified that the directors have meet the crisis in the manner they have. Having broken the ice, they will feel no longer bound by the pledges of the past, but are now left free to act up to their own convictions of what is for the real interest of the road. The step they have taken cannot fail to do much to restore confidence in the management of this road, and of similar works.

The actual earnings of the road for the first six months of the year (estimating those of June to be $360,000), are stated to be about $2,050,000. The expenses are reported to be about 60 per cent of this sum. The debt of the company is stated to be as follows:

Funded debt	$19,053,868
Floating debt	2,747,234
Total	$21,801,102
Estimated earnings for six months	2,050,000
Deduct interest on debt	$763,038
" running expenses	1,230,000
	1,993,038
Leaving for dividend	56,962

The amount of outstanding stock is stated to be $9,930,930.

If the street rumors are correct, the capital account has increased some $400,000 since March. This, however, is mere conjecture.

We understand that the actual, are less than the reported, earnings of the road by at least $100,000. This deficiency has arisen from the drawback found to be due connecting lines. In our recent articles upon the management of this road, we took the ground that a large discrepancy would be found to exist between the *actual* and *reported* earnings from the very nature of the case. A large portion of the freight of the Erie, is received from other roads, the charges upon which are collected at *New York*. The receipts therefore upon the Erie road, by no means express the amount of the earnings. We hazarded the conjecture that a proper exhibit of the affairs of the company for 1852, would have showed a fact, which is now fully admitted by the directors.

The directors will undoubtedly publish, as soon as can be done, a report setting out in full the condition of the company's affairs. Released as they are from all obligation to the past policy of the company, we have no fears that they will not adopt such a policy for the future, as shall promote the best good of all concerned. We shall contribute what we can toward such a result. We felt compelled to attack the management of the company in the very flush of its success. The result has completely indicated both our sagacity, and our motives. We are too well content with the good we have accomplished, to cherish any unkind feeling toward the company, or parties, who, in the excitement of the moment, may have treated us unkindly. For one, we stand ready to lend the Erie railroad a hand, in helping it on in its new career.

The Michigan Central railroad company's earnings for May, were

	1853.	1852.
Passengers	$66,610 93	$66,518 56
Freight	47,224 12	67,195 05
Miscellaneous	21,367 45	20,104 06
Total	$135,202 50	$153,817 67

For the six months ending 31st of May, they were $440,763 64 against $324,386 78, in the same period of last year.

The decrease in May, 1853, as compared with May, 1852, is, it will be seen, entirely in freight.

The whole fancy market has settled down with Erie. Dividend paying stocks are unaffected.

The Sub-Treasury has over eight millions, being a much larger amount than ever before reached.

The entire track of the Bellefontaine and Indiana railroad, with the exception of seven miles at its western terminus, (Union) is now laid. The whole will be completed and in full operation during the present month.

The Western railroad of Massachusetts has paid a dividend of 3½ per cent, and in addition, the company pays annually from its net income the sum of $50,000 to the sinking funds, and the interest earned by these funds is $60,000 more, so that equal to 2 per cent is gained for the benefit of the stock, in addition to the two dividends. The value of these funds is equal to more than $20 the share, and it is estimated that they will be sufficient to pay the debt at maturity.

The bids for the $3,000,000 Illinois Central railroad loan opened recently reach an aggregate of $4,930,000, ranging from par to 5½ per cent premium.

The earnings of the Macon and Western railroad company for May were:

Passengers	$6,812 27
Mails	1,080 04
Freights	8,717 30
	$16,609 61
Corresponding month last year	18,257 96
Decrease	$1,648 35

Erie and N. Y. City Railroad.

Active operations have been commenced upon this work; a large number of men are at work between Randolph and Little Valley, and we learn from the contractors that it is their design to have the road opened to Randolph, 16 miles, before the 1st of January next.

The entire line, from Little Valley to Erie will be put under contract forthwith. The people on the line are showing their energy and confidence in the road by liberal subscriptions to the stock; about $400,000 has already been secured in the country.

From the mouth of the Little Valley Creek, on the Alleghany river, at the very base of the most northerly spurs of the Alleghany Mountains, it leaves the N. Y. and E. road, and strikes an almost direct west line, through a populous country, to the harbor of Erie; a harbor open earliest in the Spring and latest in the Fall of any on the South Shore of the Lake, east of Cleveland, and certainly the best point for both passengers and freight

moving east or west, to take or leave the lake and the Lake Shore road.

The Erie and New York City railroad presents the shortest and best route for the entire Western country South of the Lakes at least, to reach New York; farther north than this road both the distance and grades are increased; farther south you meet the impassable barriers of the Alleghany Mountains, or become embarrassed with their impracticable grades, or entangled among their circuitous gorges.

Columbus and Xenia Railroad.

We have the third annual report of this Company, made up for the first eleven months of 1852, which present the following exhibit of their affairs:—

Entire cost of road and fixtures to Dec. 1 1852	$1,257,007 88
Capital stock paid up and issued	1,092,137 97
Bonds issued	118,500 00
Receipts for 11 months to Dec 1, '52	$237,506 22
Current expenses for do	102,142 72
Leaving as net earnings	$135,363 50
Increase of receipts over corresponding 11 months of previous year	$42,785 58

A dividend of ten per cent, payable in stock, was declared July 1st, 1852, out of the net earnings of the preceding six months, and from a portion of the surplus earnings of the previous year. A second dividend of five per eent, in cash, was declared November 30th.

The through passengers for 11 months were 103, 651. The way passengers for same time were 22, 416. An increase over a like period in 1851 of 33, 023 through, and 4,131 way passengers.

Journal of Railroad Law.

LIMITING A CARRIER'S LIABILITY.

This may be done by express notice, in England as well as in this country; and there, as well as here, it is necessary that the notice by which the carriers' liab ility is designed to be restricted, should be actually brought home to the knowledge of the party who is to be charged therewith.

This was the turning point in a late case, tried at Nisi-Prius, in the English Court of Queen's Bench. *Walker vs. the York and North Midland Railway Company*—before Justice Coleridge.

The action was brought against the company upon the alleged ground, that they had failed to deliver, in season for the London market, a quantity of herring, which had been sent by the York and North Midland road. Mr. Reynolds, one of the defendants' witnesses, testified that he had, by the direction of the company, personally notified the Yarmouth fishermen, (and the plaintiff in particular) that such company would not be liable for not delivering fish in London in season for the market. Plaintiff endeavored to show that at the time when the notice was alleged to have been served "he was out in a *coble*."

The Judge told the jury, that if they were satisfied that a notice like that in question had been served upon the plaintiff, they must find a verdict for the defendants. And accordingly a verdict was rendered in favor of the company.

A similar case was decided between Shaw and the same company in 1849. In the case last mentioned, plaintiff alleged that the defendants were proprietors of the York and North Midland railway, and of certain carriages for the conveyance of passengers, cattle and goods upon the said railway for hire; that they received nine horses from plaintiff to be safely carried in the railway carriages of defendant, at the ordinary prices; and that from the insufficiency of one of the carriages, one of the horses was lost. It appeared that when the horses were received, a ticket was given to the plaintiff, stating the amount paid by the plaintiff for the carriage of the horses, and the journey they were to go, and having at the bottom the following memorandum:

"N.B. This ticket is issued subject to the owners' undertaking all risks of conveyance whatsoever, as the company will not be responsible for any damage or injury, however caused, occurring to horses or carriages while travelling, or in loading or unloading."

The Court held that the terms contained in the ticket formed part of the contract for the carriage of the horses, and that the alleged duty of defendants, safely to carry the horses, did not arise.

DAMAGES IN CASE OF DEATH.

The close connection between the spirit of an age and its legislation, is in no respect more forcibly shown than by modern laws in regard to disasters in travelling.

By the old Common Law, the death of a human being furnished no ground of action for damages, however valuable such a life might have been. Stern, indeed, was the *punishment* inflicted of old upon those who had occasioned by negligence the death of another; but the idea of ascertaining the pecuniary damages sustained by the family of a person killed by the fault of another, was the fruit of a commercial and practical age.

It is obvious, that measuring damages in such cases by the past annual earnings of the deceased, can only be deemed an imperfect and approximate method—for they who earn most, are most apt to save something for the future—and their families may consequently suffer less from their loss than if their earnings had been more scanty.

In England, it was not until the 9th year of Victoria, that a statute was enacted rendering a party who had occasioned the death of another, liable to the widow and next of kin of the deceased.

In New York a similar act was passed in 1847. But in 1849 it was amended, by providing that in such a case the damage awarded should not exceed $5,000.

In Massachusettr, by the law of 1840, the widow and next of kin may maintain actions under the circumstances above mentioned—but they cannot be allowed damages greater than $5,000, nor less than $500.

Kindred provisions exist in Maine and New Hampshire.

In Connecticut, a law was passed several years ago, allowing actions to be brought by the representatives of deceased persons when the latter have been killed by the wrongful act or negligence of others—but it does not limit the amount to be recovered. We need hardly mention that since the Norwalk disaster this subject has been under earnest consideration in the Legislature of that State, and a highly stringent act will be the probable result. But many suits have been commenced in Connecticut by the surviving friends of the Norwalk sufferers under the law already in force.

In several of the States the laws in regard to this subject are undergoing, or have undergone, material changes. But the general tendency in this country is strongly in favor of awarding damages to the widows and next of kin of those who are killed on railroads and steamers.

The following is extracted from the correspondence of the Boston Post:

"A lady was travelling with her husband on the Midland Counties railway, in 1851, when another train ran into theirs, killing the husband and several others. The lady brought a suit—a sum was offered but she would not accept it—and it was contested. The killing was not denied, nor the carelessness of the action; it was merely a question of damages. The lady proved that her husband was a professional man, a lawyer, I think, and that his average annual income was £2,000. His age was proved, I believe he was 38. Life insurance tables were then consulted, and the average length or duration of lives beyond that period was ascertained. The probable duration of his life, or its 'value,' as life insurance has it, was found, and it reached, I think, 52 years, or 14 years beyond the period of his death. They then took either one-half of his income, or one third, one-half, I believe, for the lady, and computing the value by compound interest for 14 years, awarded the amount, and it was *nearly seventy thousand dollars*."

Accurate and Economical Method of Boring Crank Pin Holes.

Machinists often meet with difficulty in boring the holes for the crank pins of a pair of driving wheels, so that they shall be exactly at right angles with each other. The old plan was to "plumb" one pair of centers on one wheel, and "level" the other. This method involved much fitting and many trials. A machine having two boring bars, at opposite ends, and at right angles one with the other, has been used in some locomotive shops. It cannot, however, be used for any other purpose, and it requires that for inside connections the cranks shall always be forged one way; or, in other words, that the "throws" shall be always in the same relative position to each other—a matter which the forgemen may sometimes forget or mistake.

An entirely accurate and an extremely simple method may be practised for this purpose, by a little adjustment of the face plate, and boring spindle of the large lathe. It is as follows: A circle is cut by running the point of a tool near the edge of the face plate, and this is divided into four equal divisions by "leveling" and "plumbing." A hole is made through the face plate, in line with the center and one of the points just found, and at the proper distance from the center to receive the crank pin of a driving wheel. The boring bar is adjusted to point directly in a line between the center and the next point in the circle. Thus there is a constant angle of 90 degrees between the center of the hole in the face plate and the boring spindle, and the face plate may be secured in this position. In boring for a pair of new wheels, one wheel may be bored in the usual manner upon the face plate, afterwards drawn upon the axle, together with the other wheel, which can be set approximately in its proper relative position, and the crank pin of the first wheel be fitted and entered in the hole found in the face plate. The wheels are then readily placed in adjustment with the boring spindle, and the second hole bored out accurately and expeditiously. This method should be perfectly understood, and practised in every repair shop, as it is always right, and makes no expense.

Census of Dayton.

The census of the city, taken by order of the Council, has just been completed, and shows the following result as compared with the enumeration of 1850:

	1850.	1853.
White pop	10,771	16,562
Add Colored	205	10,976
Increase since 1850		5,586

The growth thus indicated has mainly taken place during the last half the period since the Federal census. The causes which produced it—the railroad and manufacturing elements—are now operating with constantly augmenting vigor, and we have every reason to expect that, in two years from this time, the population of Dayton will come up to twenty-five thoussand—*Dayton Gazette.*

Alexandria, Loudoun and Hampshire Railroad.

Charles P. Manning, Esq., long connected with the Baltimore and Ohio railroad, and an engineer of ability and experience, has been appointed Chief Engineer of this road, Robert T. Mason, Esq., of Va., assistant engineer, and Reuben Johnson Esq., of Alexandria, Clerk of the Company.

This road, as is well known, is to connect the city of Alexandria with the coal field of the George's Creek Valley. The State of Virginia has subscribed three-fifths of the amount necessary to construct it about one-half of the way, to be expended on the eastern section, and private individuals have taken a sufficient amount of the balance of the stock to secure the immediate commencement of operations. The work has been entered upon with energy, and the President of the company, Lewis McKenzie, Esq., of Alexandria, is a gentlemen who will push it forward with unceasiug activity.

Vincennes and Paducah Railroad.

Hon. A. G. Ellis has resigned the Presidency of the Ohio and Mississippi railroad, and has been elected President of the Vincennes and Paducah road. The length of this road will be one hundred and thirty miles. We learn that Judge Ellis recently visited Cincinnati and procured a stock subscription of $4,000 to the road, and that the first installment on the subscription placed to his credit. The plan is to finish this road ready to run by the 1st of January, 1855. The Ohio and Mississippi company will endorse this Paducah company, and thus secure a connection with Memphis and New Orleans, and also with the Mobile road.

"Gardner's Rock Drill."

DESIGNED for Tunnelling, Quarry use, and Rock Excavations of all descriptions, by the use of which a saving of 50 to 75 per cent is made.

Applications for Territorial Rights and Machines must be made to the Patentee. G. ARTHUR GARDNER,
Trinity Buildings, Broadway,
June 9, 1853. New York.

W. G. ATKINSON,

MINING ENGINEER, SURVEYOR AND DRAFTSMAN,
CUMBERLAND, MARYLAND,

Will attend to business in his Profession in the Coal Region and vicinity.

REFERENCES:
Jerry Cowles, Esq., New York.
Col. Wm. Young, do.
Jas. W. McCulloh, Esq., U. S. Treas., Washington.
June 25, 1853.

Railroad Iron.

2000 Tons of Rails, weighing from 58 to 60 lbs. per yard of Favorite Patterns, now on hand in New York, For sale by W. F. WELD & CO.,
June 21, 1852. 42 Central Wharf, Boston.

DIVIDEND NOTICE.

THE SEMI-ANNUAL INTEREST falling due in this city on the 1st day of July, 1853, on the following named Securities, will be paid on and after that date at the office of the undersigned on presentation of the proper Coupons, viz:

The Bonds of the State of Indiana for Banking Purposes issued in 1854, being the $1,390,000 loan, 5 per cents.

The State of California Seven per Cent Civil Fund Bonds, which are made payable in this city.

The Bonds of the City of Pittsburgh, Penn., issued to the Phio and Pennsylvania Railroad Company, 6 per cents.

The Bonds of the City of Alleghany, Penn., issued to the Ohio and Pennsylvania Railroad Company, 6 per cents.

The Bonds of the City of Chillicothe, (Ohio,) issued to the Marietta and Cincinnati Railroad Company, 7 per cents.

The Bonds of the City of Marietta, (Ohio,) issued to the Marietta and Cincinnati Railroad Company, 7 per cents.

The Bonds of the City of Steubenville, (Ohio,) issued to the Steubenville and Indiana Railroad Co., 7 per cents.

The Bonds of the City of Covington, (Kenucky) issued to the Covington and Lexington Railroad Co., 6 per cents.

The Bonds of Franklin County, (Ohio) issued to the Columbus and Xenia Railroad Co., 7 per cts.

The Franklin County, (Ohio) Bonds, issued to the Cleveland, Columbus and Cincinnati Railroad Co., 7 per cents.

The Greene County (Ohio) Bonds, issued to the Columbs and Xenia Railroad Co., 7 per cents.

The Champaign County (Ohio) Bonds, issued to the Columbus, Piqua and Indiana Railroad Co., 7 per cents.

The Bonds of Stark County, (Ohio) issued to the Ohio and Pennsylvania Railroad Co., 6 per cts.

The Richland County, (Ohio) Bonds, issued to the Ohio and Pennsylvania Railroad Company, 6 per cents.

The Bonds of the County of Alleghany, (Penn.) Special Loan of $75,000, 6 per cents.

The Ross County (Ohio) Bonds issued to the Marietta and Cincinnati Railroad Co., 7 per cents.

The Athens County (Ohio) Bonds, issued to the Marietta and Cincinnati Railroad Co., 7 per cents.

The Washington County (Ohio) Bonds, issued to the Marietta and Cincinnati Railroad Company, 7 per cents.

The Bonds of Van Wert County (Ohio) issued to the Ohio and Indiana Railroad Co., 7 per cents.

The Bonds of Allen County (Ohio) issued to the Ohio and Indiana Railroad Co., 7 per cents.

The Bonds of Allen County, (Indiana) issued to the Ohio and Indiana Railroad Co., 7 per cents.

The Bonds of Crawford County (Ohio) issued to the Ohio and Indiana Railroad Co., 6 per cents.

The Bonds of the County of Coshocton, (Ohio) issued to the Steubenville and Indiana Railroad Co., 6 per cents.

The Ohio and Pennsylvania Railroad Company Mortgage Bonds, 7 per cents.

The Bellefontaine and Indiana Railroad Company Real Estate Special Mortgage Bonds, 7 per cents.

The Indianapolis and Bellefontaine Railroad Company Mortgage Bonds, 7 per cents.

The Marietta and Cincinnati Railroad Company Mortgage Bonds, 7 per cents.

The Steubenville and Indiana Railrord Company Mortgage Bonds, 7 per cents.

The Dayton and Michigan Railroad Company Mortgage Bonds, 7 per cents.

The Peru and Indianapolis Railroad Company Mortgage Bonds, 7 per cents.

The Indiana Central Railroad Company, 10 per cent Bonds.

The Bonds of the several Townships in the Counties of Jefferson, Carroll, Harrison, Tnscarora, Coshocton, Muskingum and Licking, (Ohio,) issued to the Steubenville and Indiana Railroad Co.

WINSLOW, LANIER & Co., No 52 Wall st.
New York, June 24, 1853.

Krupp's
BEST CAST STEEL.

Which obtained the Council Medal at the London Exhibition in 1851.

Warranted unapproachable as to Quality and Size.

PLATERS and other Cast-Steel Rollers, of any dimensions not exceeding six feet long by eighteen inches diameter.
Piston Rods and Shafts for Steam Engines.
Railway and other Axles, Cranks, Springs and Tyres.
Cannon, Rifle and Gun Barrels.
Mint and other Rolling Mills

—Particularly applicable for—

Engravers' Transfer Rollers and Plates; Die-sinkers', Tool-makers, Reed and Lace Makers' use; Dredging Chains, etc., etc.
Manufactured at Essen, in Rhenish Prussia, by FRIED. KRUPP.

PROSSER'S

PATENT LAP-WELDED

Wrought Iron Boiler Tubes.

PATENT WARMING APARATUS,

ATTEMPORATORS AND SURFACE CONDENSORS.

Every article necessary to drill the Tube Plates, and to set the Tubes in a proper manner, and to keep them in good condition.

CORE BARS FOR FOUNDRY USE.

Iron Tubes for Artesian Wells, screwed together flush on either side.

Agents, THOMAS PROSSER & SON,
June 25, 1852. 28 Platt street, New York

CENTRAL RAILROAD CO.

OF NEW JERSEY.

$950,000 of Stock.

BY ORDER of the Board of Directors, the Finance Committee of the Central Railroad Co. of New Jersey will open Books of Subscription for the Unissued Stock of the Company, amounting to $950,000, at the BANK of AMERICA, in the City of New York, on the 27th June instant, and keep the same open one week, unless the whole amount shall be sooner subscribed. This Stock comprises all that the Company are entitled to issue, and the money received is to be applied to the construction of a second track, improvements at Elizabethport, and other preparations imperatively demanded by the connections to be opened in another year. This mode of distribution has been adopted, in preference to a pro rata allotment, to enlarge the number of stockholders, and facilitate the acquisition of stock by those now desirous but unable to procure it.

The Ferry, 12 miles, from New York to Elizabethport, and the Railroad, 63 miles, from Elizabethport to Easton, Pa., have been operated thro' the entire distance for nearly a year, and both are fully equipped for the present business. Passengers preferring the land route can go from New York by the way of Newark to Elizabethtown and there intersect the trains.

From the terminus at Easton, the Lehigh Valley Railroad is in active course of construction to Mauch Chunk, 46 miles, and will be opened in July, 1854, connecting New York, winter and summer, with the Lehigh coal fields, by a route of only 125 miles; the Lehigh road having only descending or level grades, and the Central Road no grade over 21 feet to the mile. At Tamaqua the Lehigh road connects with the Catawissa road, now constructing, and to be completed in May, 1854. This connects with the Sunbury and Erie road, now under contract and to be completed in two years. Thus the year 1855 will see a new route of favorable grades and curves only 462 miles in length, opening from New York to Erie on Lake Erie.

A direct and favorable connection with Pittsburg and the Pennsylvania Central Railroad, can also be made through existing roads and charters.

From New Hampton, a point on the Central Railroad of New Jersey, 59 miles from New York, the Warren Branch road in connection with the Delaware, Lackawanna and Western road and the Oswego, Syracuse and Binghamton road, will bring the Lackawanna coal region within 133 miles of New York, with grades of only 21 feet to the mile (except for a few miles in leaving the coal basis at Scranton), and give an unbroken line of six feet

gauge, 310 miles in length, from New York to Oswego on Lake Ontario. Of this distance, 156 miles are finished and in operation; 80 miles are under construction and to be opened this Fall; the remaining 74 miles are located, contracted, and to be completed in the Fall of 1854.

It may be interesting to state that the Central Railroad of New Jersey, from its local business, without any of the anticipated connections, has been enabled to pay seven per cent on the cost of the several sections as they have been opened, and that the entire road, with its present local business, is now paying dividends at that rate.

At the close of the fiscal year, April 1, 1853, the financial condition of the company was as follows:

Capital stock	$1,034,700 00
Mortgage bonds, 7 per cent	1,500,000 00
Other bonds, 6 per cent	113,000 00
Bills payable and balance due	249,022 04
Balance of earnings over dividend	1,006 85
	$2,897,728 89

This was represented by the following property:

Railroad, average $37,800 per mile	$2,379,886 64
Ferry interest and boats	140,900 00
Station houses, shops, etc.	78,000 00
Land at Elizabethport	55,016 77
Equipment	218,504 64
Materials, wood, coal, cash, etc	25,420 84
	$2,897,728 89

Full statements of the condition of the company can be obtained at the office, 5 Wall street, where those desirous to examine the road with reference to investment can procure tickets for the trip.

The Finance Committee call the attention of capitalists with the greatest confidence to the present position and future prospects of the road, believing that no road in this vicinity presents greater inducements for investment. They reserve the right to reject or reduce subscriptions, if the whole amount subscribed should exeed the amount to be issued.

Ten per cent will be required to be paid on allotment of the stock, and the remainder in instalments of ten per cent every sixty days on notice, as required. Interest at the rate of seven per cent will be allowed till the instalments have all been called. If the dividends on the full stock are at a higher rate, the difference will be made good to thh scrip Stockholders when their stock is filled up.

Dated New York, June 17, 1853.

JOHN T. JOHNSTON,
JOHN C. GREEN,
WILLIAM E. DODGE,
WILLIAM S. WETMORE,
} Finance Committee.

To Contractors.

OFFICE JAMES RIVER AND KANAWHA CO., Richmond, June 18, 1853.

SEALED proposals will be received by the undersigned, at Buchanan, in the county of Botetourt, Virginia, until 5 o'clock P. M. on the first day of August next, for the Locks, Dams, Culverts and Sections of the Canal, from Buchanan to Craig's Creek.

Payments will be made in current bank notes. Besides the usual reservation of twenty per cent on the monthly estimates, the contractors will be required to give ample security, satisfactory to the Board of Directors, for the completion of the work at the time and in the manner specified in the contracts.

Plans of the above works will be exhibited by Edward Lorraine, Assistant Engineer at Buchanan, and specifications will be delivered by him, and also at the Company's office in Richmond, on and after the 15th day of July.

Time will be taken for the consideration of the bids until the 5th day of August, when, if satisfactory, the several jobs above advertised will be let.

WALTER GWYNN,
Chief Engineer J. R. and K. Co.

CAR, LOCOMOTIVE, AND TENDER SPRING MANUFACTORY.

PHILADELPHIA, *March* 1, 1852.

We beg leave to present the following Certificates to the consideration of **Railroad Companies and Car Builders,** for the quality of **CAR, LOCOMOTIVE, AND TENDER SPRINGS** manufactured by us.

At the same time we would inform Railroad Companies and Car Builders that we have extended our works, and will be happy to execute any orders for Steel Springs for Cars, Locomotives, or Tenders, of any design or pattern which they may see proper to intrust to us, at the lowest prices, and on terms which will prove satisfactory.

From our long experience as Spring manufacturers, we are enabled to supply Railroad Companies with **Spring Steel,** of superior quality, *converted from Swede Steel Iron.*

The iron being imported direct from Stockholm by ourselves, and Converted and Rolled under our supervision.

Yours respectfully,

JAMES JEFFRIES & SON,
REAR OF GIRARD HOUSE.

Philad'a, Feb. 27, 1852.

MESSRS. JAMES JEFFRIES & SON,

Gentlemen: In reply to your inquiries as to the character of the Springs furnished by you for Locomotive Engines and Tenders, I take pleasure in saying that I have found them, both in material and workmanship, superior to anything else of the kind that ever came under my notice. I have occasionally tried the Springs of other manufacturers, but in testing their elasticity and strength with the apparatus I have for that purpose, I have found none combining the requisites of a good spring, viz., lightness, elasticity, and durability, in so eminent a degree as yours.

I am using them exclusively under the Engines and Tenders of my make, and can safely recommend them to others.

Yours truly, M. W. BALDWIN.

Office, Penn'a Rail Road Co.
Philad'a, Feb. 26, 1852.

This is to certify, that James Jeffries & Son manufactured nearly all of the Steel Springs used on the Georgia Rail Road while I had charge of that work, and have also furnished those that have been used on the Pennsylvania Rail Road. The character of their work has always given entire satisfaction, and I cheerfully recommend their Springs to the patronage of Rail Road Companies and Car Builders.

J. EDGAR THOMSON,
Chief Engineer and President Penn'a Rail Road Co.

Office, Phil'a, Germantown & Norristown R. R. Co.
February 28, 1852.

This is to certify, that I have used the Steel Springs manufactured by Messrs. Jas. Jeffries and Son, for the Locomotives, Passenger, and Freight Cars of the above Road, during the last 12 years, and have always found them good and efficient Springs, giving general satisfaction. R. FRENCH.

Philadelphia, Feb. 23, 1852.

This is to certify, that we have used Car Springs made by James Jeffries & Son, for the period of twelve years, and find them a very superior article, so much so, that we shall always continue to use them. DUTILH, HUMPHREYS & CO.
Proprietors of Union Line of Trans. from Phila to Pittsburg

Philadelphia, Feb. 27, 1852.

MESSRS. J. JEFFRIES & SON,

Gentlemen: We have been using your Steel Springs under our Cars for a number of years, they have given entire satisfaction, and have proved themselves superior to any other that we have used. Their good qualities should commend them to any who have need of an article so difficult to obtain perfect. Yours truly, HARRIS & LEECH,
Proprietors of Leech's Trans. Line from Phil'a to Pittsburg.

Richmond, Jan. 6, 1852.

MESSRS. JEFFRIES & SON: It affords me pleasure to say, that after some six or seven years' trial of your Springs, I find them superior to any other Springs we have used on our road, and are so well satisfied with their merits as to continue the use of them. I am, very respectfully yours,

THOMAS SHARP,
Superintendent R. P. & P. R. R.

Office, R. & P. R. R. Co.
Richmond, Va., Jan. 6, 1852.

TO MR. THOMAS JEFFRIES,

Dear Sir: I take pleasure in stating that the Springs made by the firm of which you are a member, and which I have been using for the last eight years on Locomotives and Tenders, and, also, on Passenger, Freight, and Coal Cars, have given the utmost satisfaction, and I consider them superior to any I have received from other establishments during the above period, and shall still continue to send you our orders for all we may want. Very respectfully yours,

THOMAS DODAMEAD,
Superintendent R. & P. R. R.

Superintendent's Office, C. R. R.
Savannah, Ga., Jan. 21, 1852.

This will certify, that Car and Locomotive Springs made by Messrs. James Jeffries & Son, of Philadelphia, have been in use on this road for a number of years, and have given entire satisfaction.

W. M. WADLEY,
Superintendent.

Office, Petersburg R. R. Co.
Petersburg, Jan. 8, 1852.

The house of James Jeffries & Son, of Philadelphia, has made us a good many Car and Engine Springs, and I take great pleasure in stating that they have always turned out well, and I believe their work can not be surpassed by any in the country.

H. D. BIRD,
President.

Office, Sup't T. & M. Power, So. Ca. R. R. Co.
Charleston, Jan. 21, 1852.

This is to certify, that the South Carolina Rail Road Company have for a number of years been using the Steel Springs manufactured by Messrs. J. Jeffries & Son, of Philadelphia, for their Locomotive Engines, and for both Passenger and Freight Cars, and I take pleasure in stating that they have given entire satisfaction, and recommend them to the patronage of all Rail Road Companies requiring such articles.

J. D. PETCH,
Sup't Trans. & Motive Power So. Ca. R. R. Co.

Philadelphia, Feb. 27, 1852.

This is to certify, that I have used Springs made by James Jeffries & Son for the period of five years, and consider them equal, if not superior to any others that I have had in use.

JOSEPH S. LEWIS,
Pennsylvania & Ohio Line.

Georgia Rail Road,
Augusta, Ga., Jan. 1, 1852

To whom it may concern.—We have used Springs manufactured by Messrs. James Jeffries and Son, for the Locomotives and Cars of our road for the last ten years, and have no hesitation in recommending them as having given general satisfaction

F. C. ARMS,
General Superintendent.

Macon & Western Rail Road,
Macon, Ga., Jan. 25, 1852.

MESSRS. J. JEFFRIES & SON,

Gentlemen: This Company has for several years purchased and used, under Cars and Engines, Steel Springs manufactured by you. We have also purchased from other manufacturers and made Springs ourselves.

Yours have given entire satisfaction, and have proved themselves equal, if not superior to any we have used. Their excellent qualities should commend them to all who have need of an article so difficult to obtain in perfection.

Yours, very respectfully, EMERSON FOOTE,
Superintendent.

Macon, Ga., January 24, 1852.

MESSRS. JAMES JEFFRIES & SON,

Gentlemen: In reply to your inquiries in reference to Steel Springs, I take pleasure in saying, that I have been in the way of observing Springs in use on Cars and Locomotives, on various Rail Roads, for seventeen years past, more particularly on the Central Rail Road of Georgia for eight years past, and during said seventeen years have been practically acquainted with your make of Springs, and I have no hesitation in saying, that your Springs with open work are the best Steel Springs I have ever used or seen in use.

Yours, respectfully, GEO. W. ADAMS,
Superintendent S. W. R. R. of Georgia.

Transpt. Office, W. & A. R. R.
Atlantic, Jan. 31, 1845.

MESSRS. JAMES JEFFRIES & SON,

Gentlemen: This road has used the Springs made by your firm since its first opening, under both Engine and Cars, and they have given entire satisfaction to all.

Very respectfully, WM. D. FULTON,
Superintendent.

Montgomery & West Point R. R. Co.
Montgomery, Ala., Feb. 23, 1852.

This may certify, that this Company have been for years using, both under their Engines and Cars, Springs from the manufactory of James Jeffries & Son, of Philadelphia, and are so well satisfied of their superiority that we can confidently recommend them to all companies in need of Springs.

SAMUEL G. JONES,
Engineer and Superintendent.

Notice to Contractors.

CATTAWISSA, WILLIAMSPORT AND ERIE RAILROAD.

SEALED proposals will be received at the Engineer's Office, in Cattawissa, Columbia Co., Pa., until the first day of July next, for the Grading, Masonry, and Track-laying of that part of the Cattawissa, Williamsport and Erie railroad, extending from Cattawissa to Milton, a distance of about 25 miles.

The work will be divided into sections of about one mile in length, and profiles, &c., of the work will be seen at the Engineer's Office in Cattawissa for ten days previous to the day of letting.

THOMAS A. EMMET,
Chief Engineer.

Valuable Works on Engineering, Mechanics, Railways, Steam Engines, etc.

CRESY'S ENCYCLOPEDIA OF CIVIL ENGINEERING $17 00
MAHAN'S ELEMENTARY COURSE OF CIVIL ENGINEERING 3 00
MILLINGTON'S ELEMENTS OF CIVIL ENGINEERING 3 50
GREGORY'S COMPLETE COURSE OF CIVIL ENGINEERING 2 00
LAW'S RUDIMENTARY CIVIL ENGINEERING, in 3 parts 94
DEMPSEY'S PRACTICAL RAILWAY ENGINEER 11 00
QUESTED'S RAILWAY SURVEYING. 1 75
RITCHIE ON RAILWAYS 1 75
LECOUNT'S RAILWAYS—Their Construction and Management 1 37
WHISHAW'S RAILWAYS OF GREAT BRITAIN AND IRELAND 7 00
BORDEN'S FORMULÆ FOR CONSTRUCTING RAILROADS 2 50
TRAUTWINE ON RAILROAD CURVES 1 00
Do. ON EXCAVATIONS AND EMBANKMENTS 1 00

(LIST TO BE CONTINUED.)

*** A large assortment of Engineering and Mechanical Works kept constantly on hand, and all new works received as soon as published.

JOHN WILEY,
Importer, Publisher and Bookseller,
167 Broadway, New York.

June 16, 1853.

GREAT WESTERN MAIL LINE.—SIXTY MILES DISTANCE SAVED, by taking the MICHIGAN SOUTHERN AND NORTHERN INDIANA RAILROAD.—Through tickets for Chicago, St. Louis, Milwaukee, Racine, Kenosha, Waukegan, and Sheboygen, by New York and Erie Railroad via Dunkirk, and Buffalo and New York City Railroad; People's Line of Steamboats, Hudson River Railroad, via Buffalo, connecting at Buffalo with the splendid steamers EMPIRE STATE, J. WILSON, Commander, Mondays and Thursdays; SOUTHERN MICHIGAN, D. PERKINS, Commander, Wednesdays and Saturdays; NORTHERN INDIANA, I. T. PHEATT, Commander, Tuesdays and Fridays; leaving Buffalo every evening (Sundays excepted.) These steamers are low pressure, built expressly for the Lake trade, and for finish, speed, strength and safety, have no superiors anywhere.

The connections with the Express Trains at Toledo and Monroe, for Chicago and St. Louis, are perfect, and can be relied upon.

Forty hours from New York to Chicago. Time and money saved by taking this Line.

Passengers preferring it, can take the Lake Shore Railroad to Toledo, the Michigan Southern and Northern Indiana Railroad to Chicago, thence by the Rock Island Railroad to La Salle, forming the only continuous line of Railroad to the Illinois river.

For through tickets or freight apply to
JOHN F. PORTER, Agent, 198 Broadway, cor. Dey st.

RICHARD NORRIS. HENRY LATIMER NORRIS.

Richard Norris & Son,

NORRIS' LOCOMOTIVE WORKS, BUSH HILL,

PHILADELPHIA,

MANUFACTURE to order Locomotives, exclusively, on any plan, or of any size—of best materials and workmanship. Their Works having been this year greatly enlarged, and furnished with the most approved Tools, they are enabled now, having a large number of Workmen employed, to execute orders with despatch.

June 9, 1853.

To Engineers and Steamboat Captains.

EXPLOSIONS PREVENTED!

BRANDS' LIQUID,

FOR DISSOLVING INCRUSTATIONS IN STEAM BOILERS.

BRANDS' LIQUID is the name of a *fluid* recently in use throughout all Europe, by the application of which the incrustations in Steam Boilers are dissolved or totally avoided, without affecting in the least the material of the boiler.

Chemical examinations and experience have fully ascertained that, by the application of this fluid, no harm whatever is done to the material of which the boiler consists.

To dissolve the hardened incrustation in Steam Boilers, pour every 10 or 14 days, in proportion as the boiler is daily for a longer or shorter time heated, the quantity of Brands' Liquid to the water in the boiler as shown in the following table:—

TABLE FOR CLEANING INCRUSTED BOILERS.

STEAM BOILERS. Which are daily from 10 to 16 hours heated, and which have a power of evaporation of	QUANTITY Of BRANDS' LIQUID wanted.	
	Every 10 to 14 days.	Per year—Barrel of 40 galls.
From 1 to 10 Horse Power,	4 to 6 Quarts,	¼ Barrel.
" 10 to 20 "	6 to 9 "	1 "
" 20 to 30 "	7 to 10 "	1¼ "
" 30 to 45 "	10 to 14 "	2 "
" 45 to 65 "	12 to 17 "	2¼ "
" 65 to 110 "	13 to 19 "	2½ "
" 110 to 160 "	15 to 21 "	3 "
" 160 to 220 "	18 to 26 "	3½ "
" 220 to 300 "	20 to 29 "	3¾ "
" 300 to 400 "	22 to 31 "	4 "
" 400 to 500 "	24 to 35 "	4½ "

If Brand's Liquid is regularly used, the incrusted Boilers are within three to five months clean; and to prevent any further incrustation in such or new Boilers, the use of Brand's Liquid must not be interrupted, but about two-thirds of the stated quantities in the table given to the water in the Boilers.

The Boilers of Locomotives require every two days, in proportion to their power and time of service, only two and a-half to four quarts of Brand's Liquid, which every second day is poured into the water in the Tender.

As often as the water in the water-gauge, on Stationary, Ship or Locomotive Boilers, becomes of a muddy appearance, the Boiler must be blown out and cleansed from the stones and dirt which have settled to the bottom of the Boiler.

The incrustation which in this manner is removed is soft, or in pieces, which are commonly of a crumbling and brilliant texture and have a brown color.

In some parts of the country, and in Marine Boilers, the incrustation is often very hard, and to remove this, the larger quantities in the given table are required. The pieces of this incrustation which are removed by the use of Brand's Liquid have lost their glassy texture, and though they commonly retain some hardness, they have a brown color, and a corrosive and decayed appearance.

To remove the incrustation of Marine Boilers, larger quantities of Brand's Liquid are required, in proportion as by the removal of the brine a quantity of the feed-water is blown out. By any simple contrivance Brand's Liquid must be brought into the boiler in small portions, or mixed with the feed water.

Brand's Liquid is not injurious to the Boiler if it is used in large quantities, even if the Boiler is entirely filled with it and heated, but, in general the quantity as is stated in the table must not be exceeded, because in connection with large quantities of incrustation the Liquid generates much priming and motion of the water, which might prove injurious to the annexed machinery, especially in Ship Boilers and Locomotives which have no large steam-chests.

The above table is made by practical experience, so that only a gentle working of Brand's Liquid is allowed, entirely free from any danger, for the Boiler once properly cleaned, the proprietor will by experiments easily ascertain the minimum quantity of Liquid that is required for the Boiler.

Should it be required to clean old incrusted Boilers by the use of Brand's Liquid in a few days, then it is only necessary to pour one-half to three-fourths of a hogshead at once into the water in the boiler, and heat it from six to eight days gently to boiling heat, for which operation the Boiler must be put out of service.

In Locomotives where the steam-chests are small, Brand's Liquid must be used oftener in small quantities as before stated. A Locomotive out of service may be cleaned within 6 or 8 days by the use of a large quantity of Brand's Liquid, (one-fourth to one-half a hogshead.

It would be needless to enter into a long discussion on the advantages in using Brand's Liquid for cleaning steam generators, being fully aware that it destined for the use of the most intelligent part of the public, and it may therefore suffice to mention its advantages in a few words, as follows:

1. Less repair of Boiler.
2. Increased generation of steam, or saving of fuel.
3. The expense of hammering and loosening the incrustation is saved.
4. Less interruption of business.
5. The Boilers remain tighter.
6. The duration of the Boilers is increased, especially of locomotives and Tube-Boilers in general.
7. Three-quarters of the causes of Boiler-explosions are removed.

☞ Price per barrel $20.

The patentees are so confident of the merits of this invention, that they offer one barrel *gratis* to parties willing to make a trial, to be paid for, only in case of success and of future orders.

Brand's Liquid is used with the best effect by the Cincinnat Water Works, and many other establishments in the West.

Address BRAND, BROTHERS,
Toledo, Ohio.
Sole Patentees both in Europe and the United States.
Or, F. DUFAIS,
43 New Street, New York.

May 28, 1853.

The Troy Iron Bridge Co.

ARE prepared to erect Iron Bridges or Roofs, or any kind of bearing trusses, girders, or beams, to span one thousand feet or under, of any required strength, in any part of the country. Their bridges will be subjected to severe tests, and can be built for about the price of good wooden ones. Address BLANCHARD & YELLOWS, Troy, N. Y.

April 1st, 1853.

Etna Car Works.

BILLMEYER & SMALL, YORK, PA., PROPRIETORS.

WE are manufacturing to order and by contract, Baggage, Freight, Express, Stock, "Reading," and other patterns of Coal Cars. Lumber and Gravel Cars, of every variety, at short notice, and on favorable terms.

Our facilities for manufacturing are extensive, and our means for transportation to all parts of the country speedy and economical.

The Wheels we use receive our own personal attention, are made of the *best Cold Blast Charcoal Iron*, of both spoke and plate patterns, solid and open hubs.

All Cars built by us, and now in daily use on the Pennsylvania Central, Baltimore, Susquehanna, York and Cumberland Roads, have been apprned as first class, and carry the largest capacity allowed on any roads. We are prepared to furnish Wheels and Axles separately or fitted, Springs and other parts of Cars at short notice. Orders and Contracts for Railroad Companies solicited. May 20*3m

To Railroad Co's, Locomotive Builders and Engineers.

THE undersigned having taken the Agency of Ashcroft's Steam Gauge, would recommend their adoption by those interested. They have been extensively used on Railroads, Steamers and Stationary Boilers, where, from their accuracy, simplicity, and non-liability to derangement, they have given perfect satisfaction. In fact, for Locomotives, they are the only *reliable* Gauge yet introduced.

CHAS. W. COPELAND,
Consulting Engineer, 64 Broadway.

Railroad Iron.

THE undersigned, Agent for the Manufacturers, is prepared to contract for T Rails, of the usual pattern and weights, to be delivered on board ship in Wales.

He will also receive and forward orders for the purchase of Railroad Iron and Metals generally, through the medium of his friends in London.

For terms, apply to
JOHN H. HICKS,
April 1, 1853. 90 Beaver st.

Gerard Ralston,

21 TOKEN HOUSE YARD, LONDON,

OFFERS HIS SERVICES FOR THE

PURCHASE AND SALE OF

AMERICAN SECURITIES,

COLLECTION OF DIVIDENDS,

DEBTS, LEGACIES, ETC.,

And for the Purchase and Inspection of

Railroad Iron, Chairs, or

any kind of Machinery.

REFERENCES:

Messrs Palmer, McKillop, Dent & Co., London.
" George Peabody & Co, London.
" Curtis, Bouve & Co, Boston.
Richard Irvin, Esq., New York.
Robert Ralston, Esq, Philadelphia.
C. C. Jamieson. Esq., Baltimore. 38

To Contractors.

SEALED PROPOSALS will be received at the Engineer's office of the Lexington and Big Sandy Railroad, in Mt. Sterling, Ky., until Aug. 10th, at sun down for the graduation and masonry of the whole of said Railroad, a distance of 125 miles. Bids will be received for any number of sections, the company reserving the right to reject all propositions, if none are satisfactory.

Propositions are also invited by contractors of ability, for the whole road.

This road runs through some of the finest portions of the State, the facilities for the supplies of every kind being very abundant.

Plans and specifications may be seen at the office after July 1st.

J. B. WESTBROOK, Chief Engineer.

Portland, April 9, 1853.

New York and Erie R. R.

PASSENGER TRAINS leave Pier foot of Duane street, as follows, viz:—

BUFFALO EXPRESS, at 6 a. m. for Buffalo direct, over the N. Y. and E. R. R., and the Buffalo and N. Y. City R. R., without change of baggage or cars.

CINCINNATI EXPRESS, at 6 a.m. for Dunkirk.

MAIL, at 8 a.m. for Dunkirk and Buffalo, and all intermediate stations.

WAY, at 3.30 p.m. for Delaware and all intermediate stations.

NIGHT EXPRESS, at 6 p. m. for Dunkirk and Buffalo.

EMIGRANT, at 8 p. m. for Dunkirk and all intermediate stations.

On Sundays only one Express Train—at 6 p.m.

The Express Trains connect at Dunkirk with the Lake Shore Railroad for Cleveland, Cincinnati, Chicago, etc., and at Buffalo with first class splendid steamers for Cleveland, Sandusky, Toledo, Detroit and Chicago.

CHAS. MINOT, Sup't.

To Contractors.

PROPOSALS for grading, masonry, and bridging of the Western Divislon of the Covington and Ohio railroad will be received at the office of the Engineer, at Guyandotte, Cabell county, Virginia, between the twentieth and thirtieth of June next.

They will embrace about 45 mile sections with Bridges over Twelve Pole, Guyandotte and Mud rivers.

Also between the 1st and 15th of July next, proposals will be received at Covington, Virginia, for the Grading, Bridging and Masonry of that portion of the Eastern Division, lying between the town of Covington and Hayne's farm, on Jackson river—a distance of 10 or 11 miles of very heavy work, including much heavy retaining wall, two large bridges over Jacksons river, and probably two tunnels.

The successful bids will be declared as soon as practicable after the 15th of July. Contractors will be required to commence the work at once, and finish within a year. Plans and specifications will be ready between the twentieth and thirtieth of June—names of securities must be given in the Bid.

By order of the Board of Public Works.

CHAS. B. SHAW,

Chief Engineer of the Cov. & Ohio R. R. Co.,

Lewisburg, Virginia.

To Contractors.

HUNTINGTON AND BROAD TOP MOUNTAIN RAILROAD.

PROPOSALS will be received at the Engineer's Office, Huntington, Penn., until the 28th day of June next, for the graduation and masonry of thirty-five miles of the above railroad.

Plans and Specifications will be exhibited in the Office for three days previous to the letting.

S. W. MIFFLIN, Engineer.

PACIFIC RAILROAD LOAN.

$4,000,000 Loan

ON THE

MORTGAGE BONDS OF THE PACIFIC RAILROAD COMPANY OF MISSOURI.

THIS Company will receive proposals until the 11th of July next, for four millions of dollars of their construction bonds, to be issued in sums of one thousand dollars each, payable at the city of New York twenty years after the date thereof, with coupons attached for the payment of interest at the same place semi-annually, on the first of January and first of July in each year, at the rate of 7 per cent per annum.

These bonds are secured by a first and only mortgage on the Southwestern Branch railroad, 300 miles in length, and one million of acres of land on the line of that branch, granted by Congress to aid in its construction: and also by second mortgage on the Pacific railroad, 290 miles in length. About 130,000 acres of land, not included in the mortgage are set apart to aid in meeting interest.

Forty miles of the Pacific railroad, from St. Louis westward, is about completed, and 85 miles further, reaching Jefferson city, the capital of the state, is under construction. About $1,600,000 has already been expended by the company in the completion of the first division, and in the construction of an excellent machine and car shop, and engine house, and the necessary real estate, and the surveys required to prepare the whole 600 miles of railway for contract.

The Pacific railroad line extends from St. Louis to the vicinity of Independence, near the mouth of the Kanzas, 290 miles, and its southwestern branch diverges about forty miles west of St. Louis, and runs near Springfield to the southwestern part of the state, a little north of Ta-le-quah, the capital of the Cherokee nation, 300 miles.

The charter was granted with the view, and the right, of ultimate extension to the Pacific Ocean, with an authorized capital of ten millions, and privilege of increase under general law.

Capital subscribed in Missouri over $2,000,000, of which about 40 per cent. is paid up. State loan to the company authorized $4,000,000, of which $700,000 has been issued and sold at a premium. For such stock now issued, the state holds a lien on the Pacific railroad only. Land granted by Congress, now the property of the company, about 1,250,000 acres.

One or the other of the lines of this company will be the Central National line of railway to the Pacific ocean. Reconnoisances and surveys of the United States government will connect with both.

The whole amount of bonds which can be issued under the mortgage is ten millions of dollars. The whole of these bonds are convertible into land of the Company, and one-half into stock of the Company, within a limited time, at the option of the holder.

The Company reserve the right to accept proposals for all or any portion of the amount.

Ten per cent of the amount allotted to each subscriber will be required on notice of the acceptance of his proposals, and the balance as called for by the Directors, not exceeding ten per ct. monthly. Any subscriber may, however, at his option, pay up in full, and receive his bonds at any time.

Interest will in all cases be adjusted, on payment of the final instalments.

Proposals will be received at the office of Messrs Riggs & Co., 56 Wall street, N. Y., inclosed, sealed and endorsed, "Proposals for Loan of $4,000,000 of Pacific Railroad of Missouri." Laws, Reports, Documents and Map, showing the condition, relations and prospects of the work, and all necessary information relative to its affairs, &c,, may be obtained after the 1st of June on application to Messrs. CAMANN & Co., or RIGGS & Co., at 56 Wall street, or the subscriber, personally, or by letter.

By authority of the Board of Directors,

THOMAS ALLEN, President.

St. Nicholas Hotel, N. Y., May 20, 1853.

Pease & Murphy,

FULTON IRON WORKS,

FOOT of Cherry st., E. R. Office, 27 Corlears, corner of Cherry st. Manufacturers of Land and Marine Engines.

N. B. Engines and Boilers repaired. 6tf

Notice.

LITHOGRAPHY.—The Court having granted the petition of the undersigned for a dissolution of his partnership with ALPHONSE BRETT, trading under the firm of A. BRETT & CO., Lithographers, Philadelphia, and having removed from Goldsmith's Hall to that convenient business stand, the new Girard building, No. 50 South Third Street, he would therefore beg leave to inform his friends and the public, that he is prepared to execute lithography in all its branches, in a superior manner. Having the best artists and workmen employed, he can freely warrant his work as equal to any in the trade.

Publishers, civil engineers, machinists, and others requiring lithographs, plain or in colors, can depend on the correctness and high finish of their designs, along with promptness and despatch.

DAVID CHILLAS,

Ap1 1m 50 South Third street.

NEW YORK

Lubricating Oil Manufacturing Co.

12 BROADWAY,

PROPRIETORS AND MANUFACTURERS OF

DEVLAN'S PATENT LUBRICATING OIL,

FOR ALL KINDS OF MACHINERY AND RAILROADS.

THIS OIL is now extensively used on the principal Railroads in Pennsylvania, New York and N. E. States. It runs machinery with less friction, thereby enabling the consumer to accomplish more with the same motive power, and save their machinery from unnecessary ware. It is entirely free from Gum, and will cleanse and destroy all old Gum that has accumulated upon Slides and Journals, by the use of bad oil. It will wear longer than Sperm, and is from thirty to forty cents a gallon cheaper, which makes a great saving to the consumer.

ap30 3m

To Railroad Track-Layers.

PROPOSALS, under seal, are requested at the Railroad Journal office, New York, on the 10th July next, for laying the track of the Mobile and Ohio, Tennessee and Alabama, and Paducah and Tennessee railroads;—aggregate length, 512 miles. Plans, specifications and other required information, will be furnished at the time and place above mentioned.

JOHN CHILDE,

Chief Engineer.

MOBILE, May 17th, 1853.

Notice to Contractors.

PROPOSALS will be received until noon the 20th June, for the Graduation and Masonry of the Franklin and Warren Railroad, extending from a point on the eastern State Line of Ohio, in the County of Trumbull to Ashland, Ashland county, Ohio, a distance of about 106 miles.

The line will be ready for examination June 13th. For particulars apply at the Engineer's office, Franklin, Portage county, Ohio.

The remaining distance of the road extending from Ashland to Dayton, or Maysville, will be ready in a short time.

M. KENT,

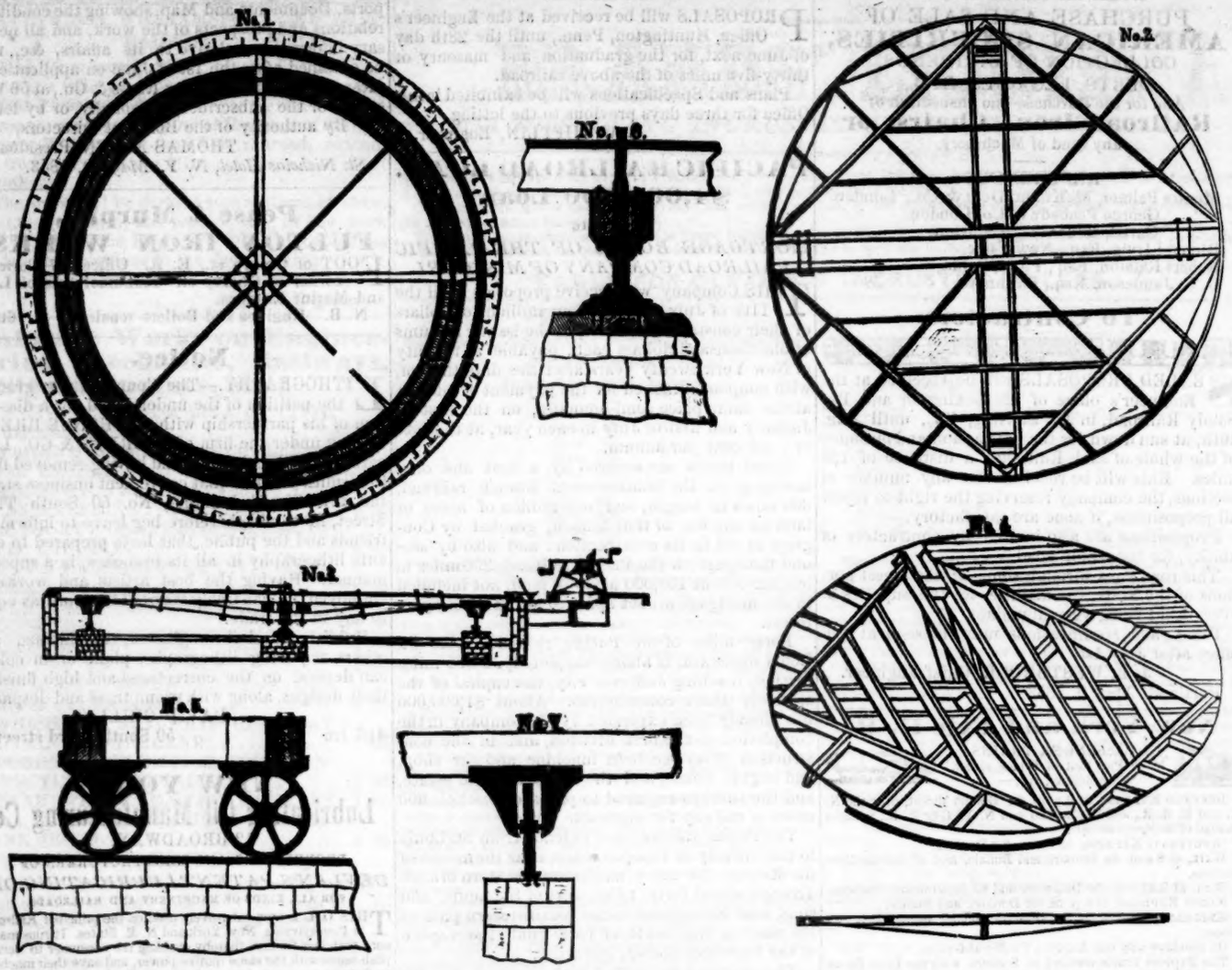
President F. & W. Railroad.

SAM'L H. KNEASS,

Chief Engineer.

FRANKLIN, May 19, 1853.

CARHART'S IMPROVED TURNTABLE.



THIS TURNTABLE, together with an Engine and Tender of 30 tons weight, *is capable of being turned by ONE MAN in 25 SECONDS.*

The Patentee of this Improved Table would solicit an examination by those Railroad Companies which have not tried its merits. It is guarantied to be the cheapest and most durable one now in use; its simplicity rendering it impossible to get out of repair, unless it is placed upon treacherous foundations. The whole cost, ready for use, was formerly $1,300 apiece; this included all the workmanship and materials, which were the best that could be furnished, with the exception of excavating the pit and furnishing the rail for the tracks. At the present time, owing to the rise in Iron, and the scarcity of stone at some points, the subscriber is compelled to ask a small advance on the above mentioned price. Should it suit the pleasure of any to nf er with the subscriber for further particulars, or inquire into the practical utility of the Table as tested for the last four years, they are respectfully referred to the

Hudson River R. R. Co.,

S. W. Roberts, Esq., Chief Engineer of the Ohio and Penn. R. R., at Pittsburgh, Pa.

O. Barnes, Esq., Resident Engineer of the Central Pennsylvania R. R., Pittsburgh, Pa.

J. Durand, Esq., Sup't of Cleveland and Pittsburgh R. R.

Wm. E. Furguson, Esq., Chief Engineer of Toledo, Norwalk and Cleveland R. R., Cleveland, O.

A. J. Conover, Esq., Chief Engineer of Columbus, Piqua and Indiana R. R., at Piqua, O.

Fig. 1, of the above cut, represents the Foundations, consisting of the Bank and Track Walls, the latter made of cut, and the former of hammer-dressed stone, with a cut coping. The Track is spiked and leaded to the stone wall, and cut perfectly level and smooth. The centre pier is of stone, with a step for the screw and pivot bolted to the same.

Fig. 2, shows the Carcass Framing.

Fig. 3, is a side view of one Main Truss, with the mode of gearing, including the mitre-wheels, and iron crank frame, rack and pinion.

Fig. 4, gives a perspective view of the rim, segments, decking, etc.

Fig. 5, is an end view of the main trucks, with pedestals and wheels.

Fig. 6, is the screw for the pivot, 6 inches in diameter, working in a steel step through a nut for adjustment.

Fig. 7, shows a cross section of the track wall, well and pedestal.

For further particulars, please address

D. M. CARHART,
Cleveland, Ohio.

February 14, 1853.

LAHAYE'S
Patent Self-acting Brake.

THE attention of Railroad Companies is respectfully called to this improvement, used exclusively on all Passenger Cars upon the Philadelphia and Reading Railroad, and now being attached to those building for the Camden and Atlantic Railroad, and several other Roads.

Lahaye's Self-acting Brake can be attached to any Car without interfering with the ordinary Hand Brake, is simple in its construction, and reliable in its action.

By trials made with this Brake, Passenger Trains, at a speed of 30 miles per hour, have been brought to rest within a distance of 250 feet.

For Right to use, or any other information, apply to

O. A. NORRIS,
American Railway Agency, 12 Farquhar Buildings,
May 20 1853. Philadelphia.

To Engineers, Architects and Draughtsmen.

THE undersigned begs respectfully to inform Gentlemen in the above professions, that he has constantly on hand a great variety of Instruments for Field and Office use.

JAS. PRENTICE,
Feb 9 1853. 1 Chamber St., N.Y.

Oxford Furnace, N. J.

ESTABLISHED A. D. 1743.

THE Subscriber manufactures and keeps constantly on hand for sale, every variety and size of Railroad Wheels, made from the celebrated Oxford Iron. All orders addressed to CHAS. SCRANTON, Oxford Furnace P. O., will be attended to promptly.

Sept. 11, 1852. 1y*

IRON.
Pierson & Co.,
24 BROADWAY, NEW YORK,

KEEP on hand a large and general assortment of ENGLISH and AMERICAN, Refined, BAR, BOLT, SHEET and SHAFTING IRON, especially manufactured for LOCOMOTIVE and CAR BUILDERS, and RAILROAD MACHINE SHOPS; also, Boiler Plates and Rivets, Sheet, Cast and Spring Steel.

Locomotive Cranks, Axles, Tires and Tire Bars, of the B. O. LOWMOOR, and other approved makes imported to order on the most favorable terms.

February 14, 1853.